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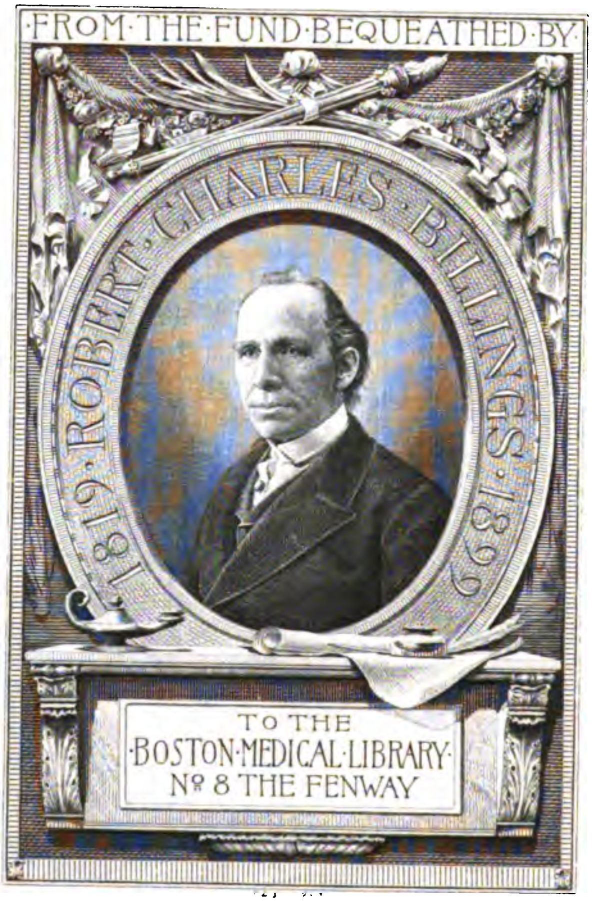

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BY
CARL TOLDT, M.D.
PROFESSOR OF ANATOMY IN THE UNIVERSITY OF VIENNA
ASSISTED BY
PROFESSOR ALOIS DALLA ROSA, M.D.

Translated from the Third German Edition and adapted to English and American and International Terminology
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M. EDEN PAUL, M.D. Brux., M.R.C.S., L.R.C.P.

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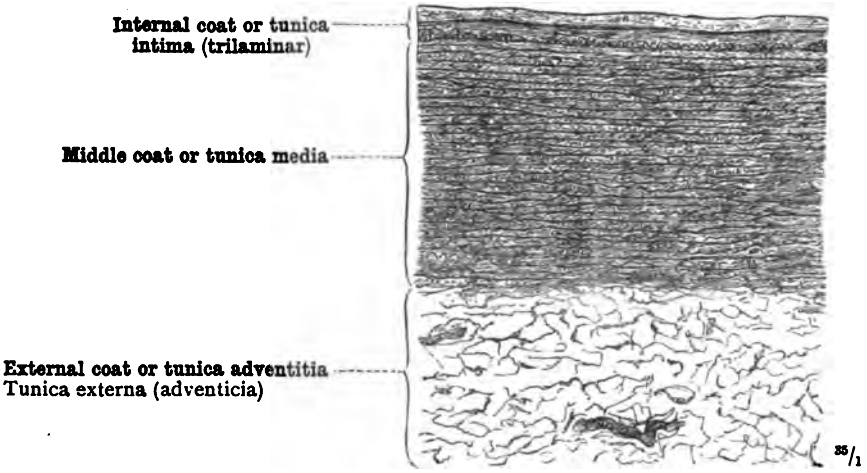
Internal coat or tunica intima (trilaminar)
Middle coat or tunica media
External coat or tunica adventitia
Tunica externa (adventicia)
$^{35}/_1$

FIG. 933.—PART OF A TRANSVERSE SECTION THROUGH THE WALL OF THE DESCENDING THORACIC AORTA (HUMAN): INTERNAL, MIDDLE, AND EXTERNAL COATS; TUNICA INTIMA, MEDIA, ET EXTERNA.

In the external coat sections of two vasa vasorum are seen.

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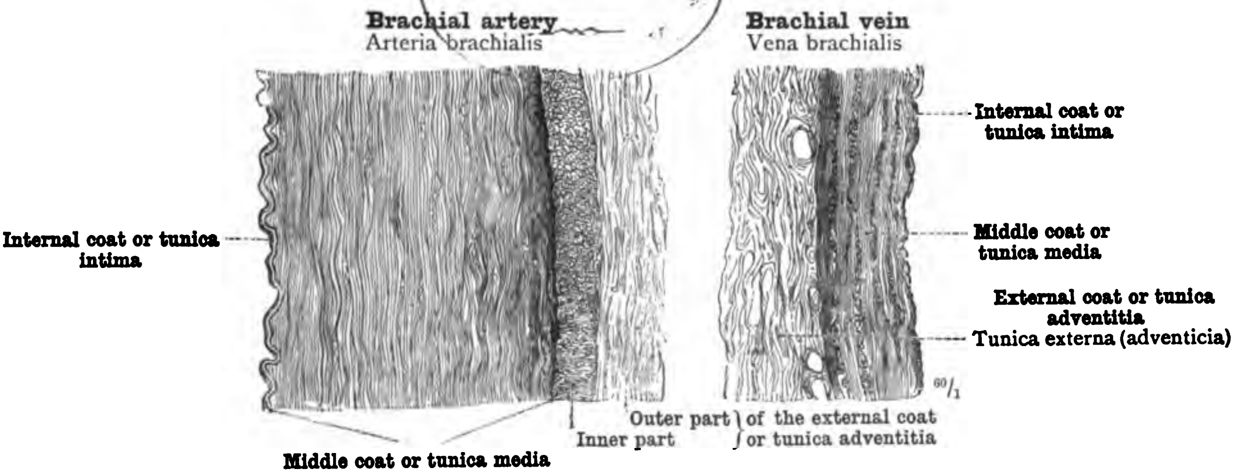

Brachial artery
Arteria brachialis
Brachial vein
Vena brachialis
Internal coat or tunica intima
Internal coat or tunica intima
Middle coat or tunica media
External coat or tunica adventitia
Tunica externa (adventicia)
$^{60}/_1$
Outer part
Inner part
of the external coat or tunica adventitia
Middle coat or tunica media

FIG. 934.—PART OF A TRANSVERSE SECTION THROUGH THE CUBITAL PORTION OF THE BRACHIAL ARTERY AND VEIN (HUMAN).

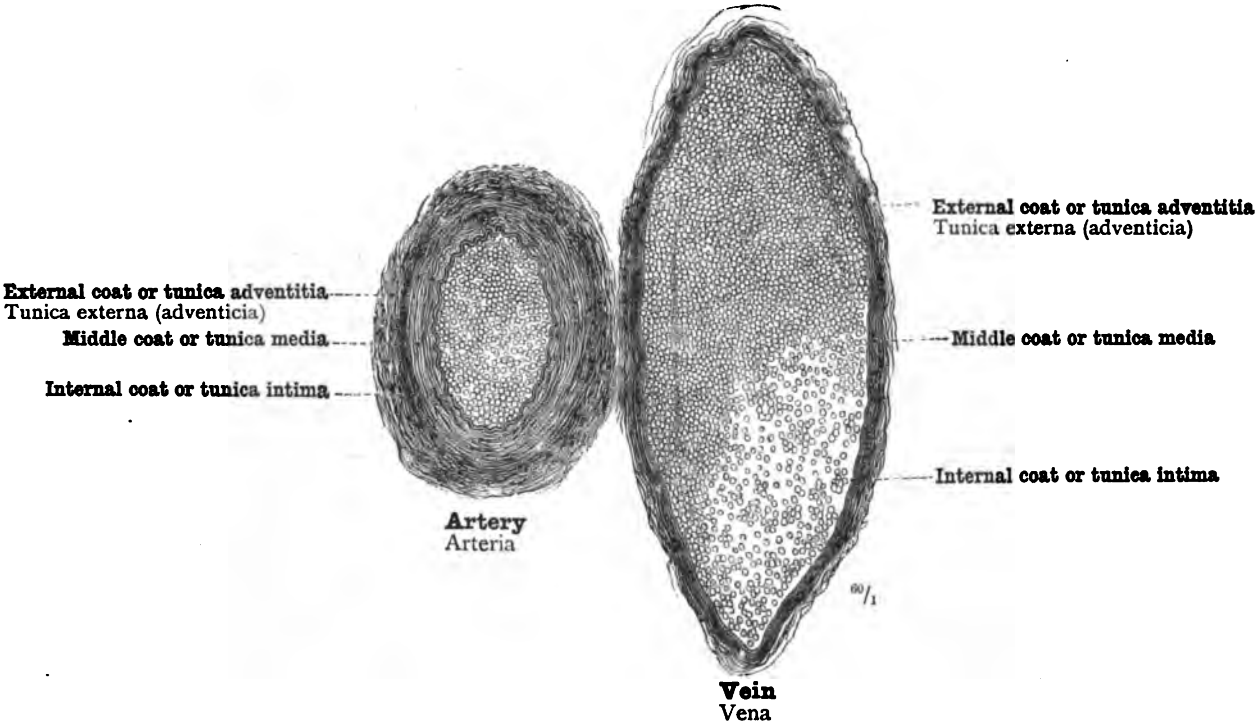

External coat or tunica adventitia
Tunica externa (adventicia)
Middle coat or tunica media
Internal coat or tunica intima
Artery
Arteria
External coat or tunica adventitia
Tunica externa (adventicia)
Middle coat or tunica media
Internal coat or tunica intima
60/1
Vein
Vena

FIG. 935.—TRANSVERSE SECTION THROUGH AN ARTERY OF THE MESENTERY AND ITS ACCOMPANYING VEIN (HUMAN).

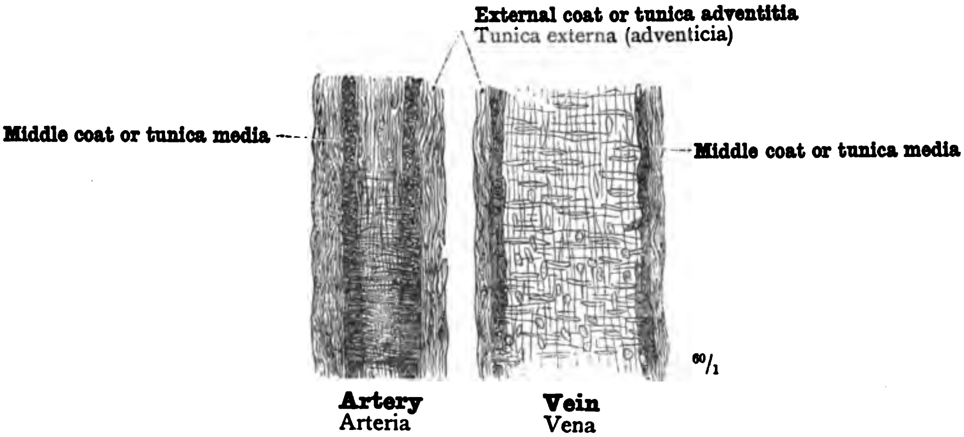

External coat or tunica adventitia
Tunica externa (adventicia)
Middle coat or tunica media
Middle coat or tunica media
60/1
Artery
Arteria
Vein
Vena

FIG. 936.—LONGITUDINAL SECTION OF A SMALL ARTERY AND VEIN OF THE PANCREAS.

The Layers of the Walls of the Bloodvessels.

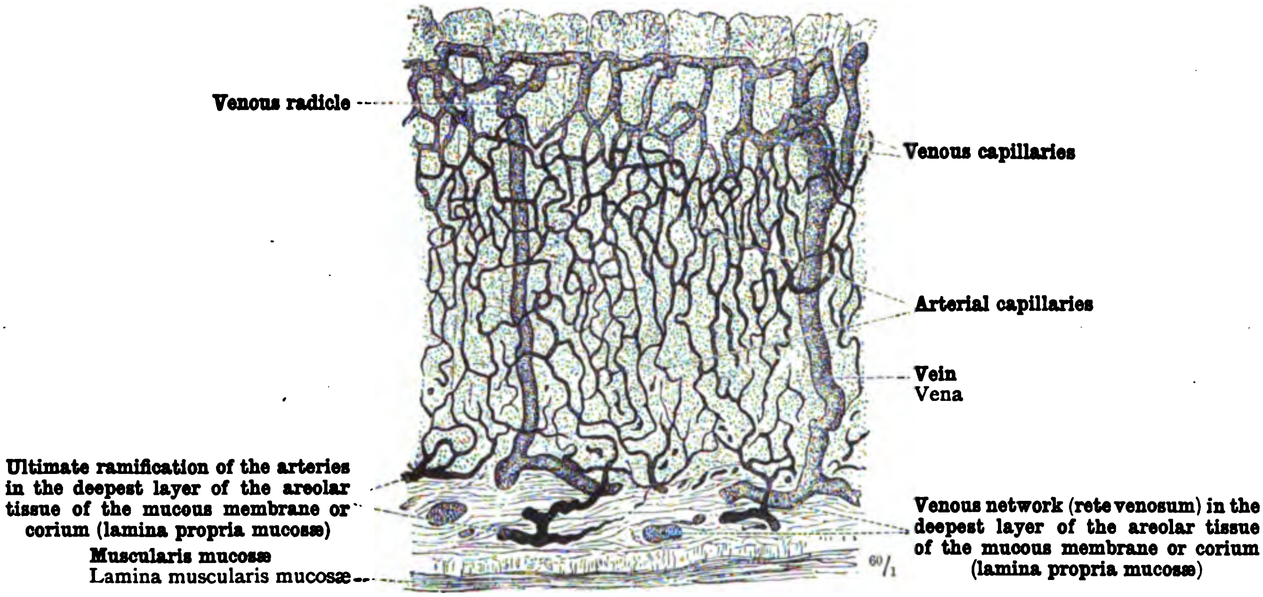

Venous radicle
Venous capillaries
Arterial capillaries
Vein
Vena
Ultimate ramification of the arteries in the deepest layer of the areolar tissue of the mucous membrane or corium (lamina propria mucosæ)
Muscularis mucosæ
Lamina muscularis mucosæ
Venous network (rete venosum) in the deepest layer of the areolar tissue of the mucous membrane or corium (lamina propria mucosæ)
60/1

FIG. 937.—BLOODVESSELS OF THE GASTRIC MUCOUS MEMBRANE IN VERTICAL SECTION: VASA CAPILLARIA, CAPILLARY VESSELS, AND THEIR CONNEXION WITH THE ARTERIES AND THE VEINS.

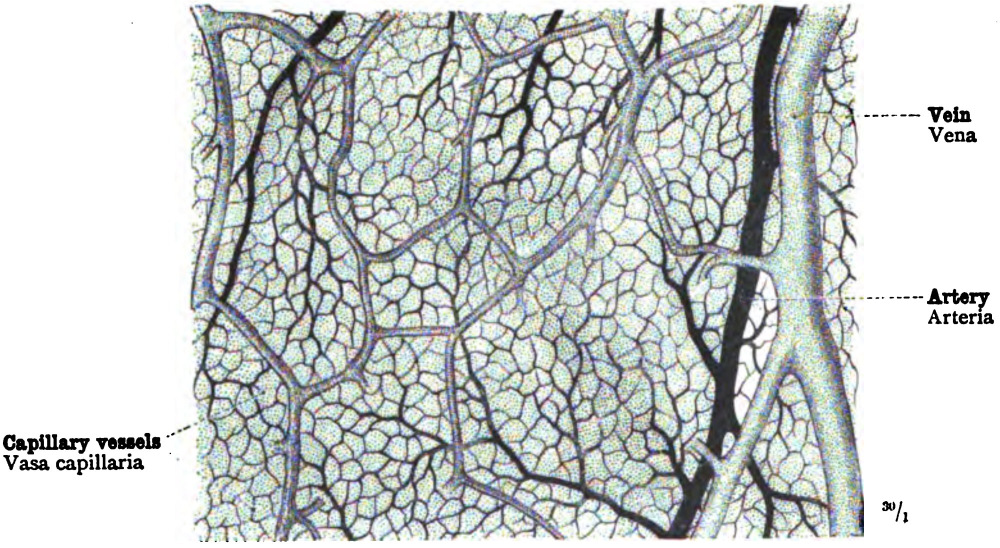


FIG. 938.—THE VENOUS NETWORK, RETE VENOSUM, AND THE ULTIMATE RAMIFICATION OF THE ARTERIES IN THE DEEPEST LAYER OF THE CORIUM (LAMINA PROPRIA MUCOSÆ) OF THE GASTRIC MUCOUS MEMBRANE.

The plane of the vascular network is parallel with the surface of the mucous membrane.

The Capillary and Subcapillary Vascular Ramification.

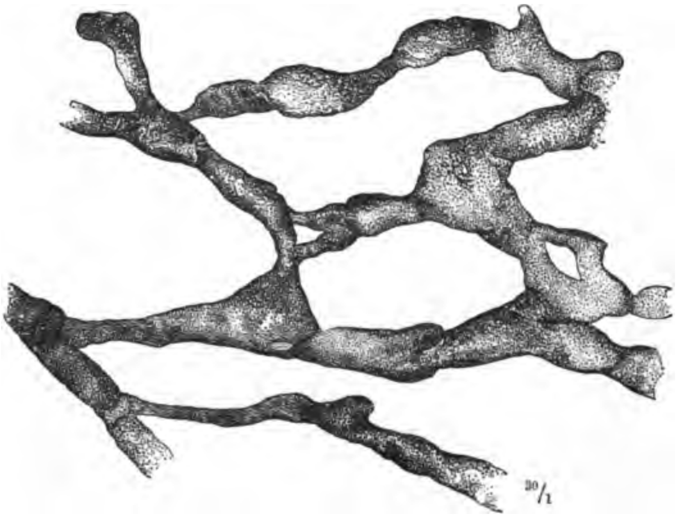


FIG. 939.—VALVED SUBCAPILLARY LYMPHATIC VESSELS (VASA LYMPHATICA) FROM THE SUBMUCOUS LYMPHATIC PLEXUS OF THE HUMAN OCULAR CONJUNCTIVA (CONJUNCTIVA BULBI), INJECTED WITH TRANSPARENT GELATIN.

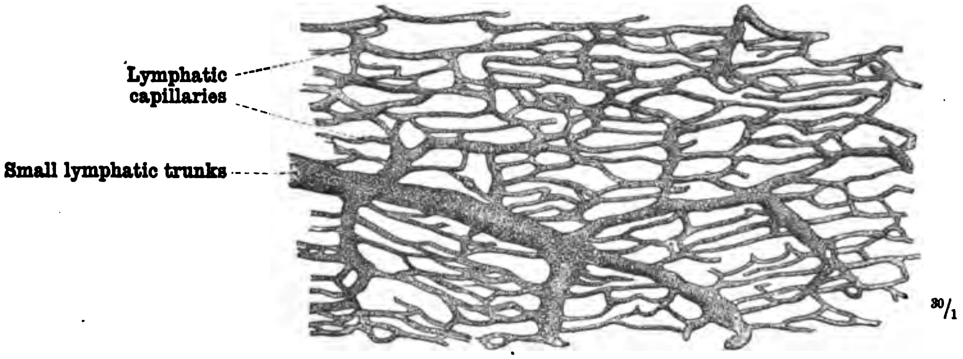


FIG. 940.—LYMPHATIC CAPILLARIES FROM THE MUSCULAR COAT OF THE STOMACH OF THE FROG, INJECTED WITH OPAQUE YELLOW GELATIN.

The Capillary and Subcapillary Lymphatics (Vasa Lymphatica).

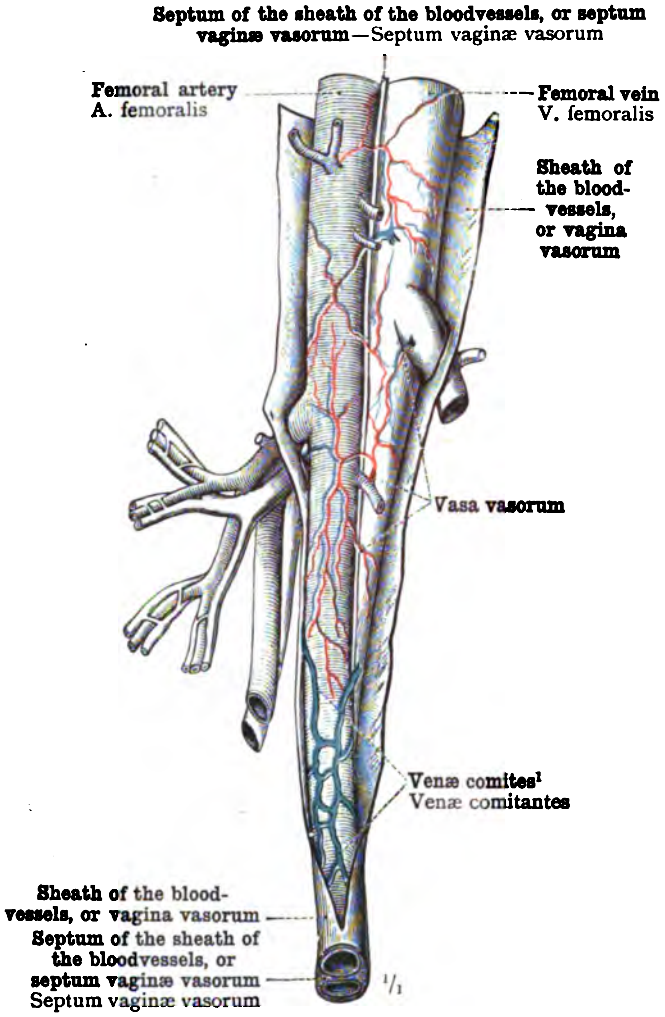

Septum of the sheath of the bloodvessels, or septum vaginæ vasorum—Septum vaginæ vasorum
Femoral artery
A. femoralis
Femoral vein
V. femoralis
Sheath of the blood-vessels, or vagina vasorum
Vasa vasorum
Venæ comites[1]
Venæ comitantes
Sheath of the blood-vessels, or vagina vasorum
Septum of the sheath of the bloodvessels, or septum vaginæ vasorum
Septum vaginæ vasorum
1/1

FIG. 941.—THE SHEATH OF THE FEMORAL ARTERY AND VEIN, OPENED. THE VASA VASORUM AND THE VENÆ COMITES[1] OF THE FEMORAL ARTERY. SEMIDIAGRAMMATIC.

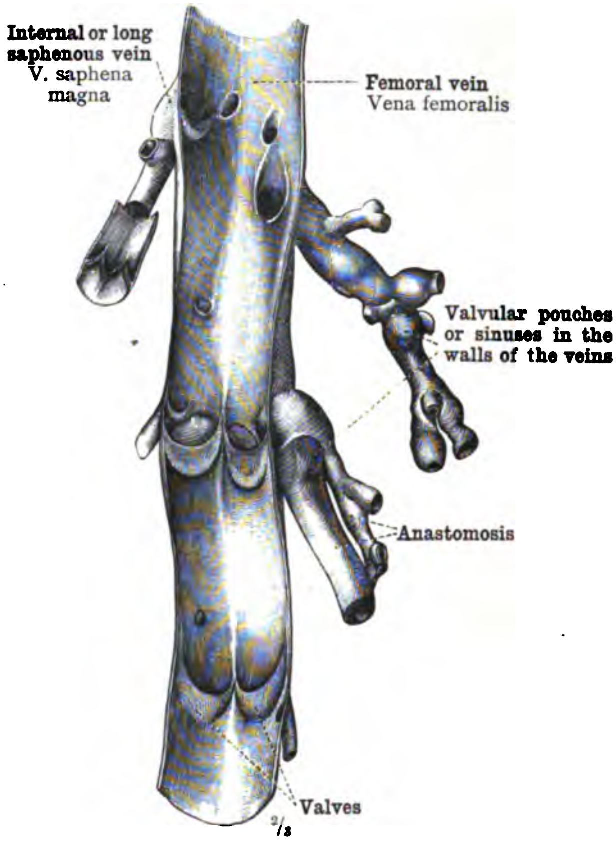

Internal or long saphenous vein
V. saphena magna
Femoral vein
Vena femoralis
Valvular pouches or sinuses in the walls of the veins
Anastomosis
Valves
2/1

FIG. 942.—THE VALVES OF THE EXCISED FEMORAL VEIN AND ITS BRANCHES.

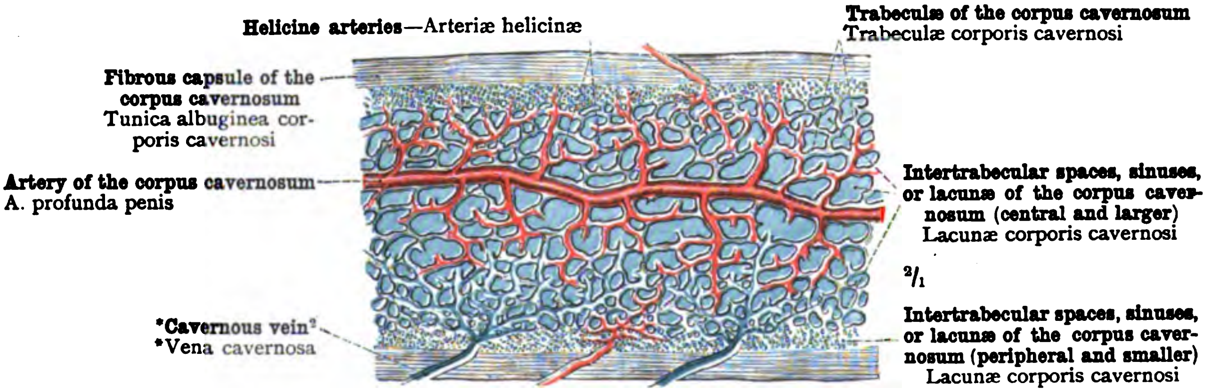

Helicine arteries—Arteriæ helicinæ
Trabeculæ of the corpus cavernosum
Trabeculæ corporis cavernosi
Fibrous capsule of the corpus cavernosum
Tunica albuginea corporis cavernosi
Artery of the corpus cavernosum
A. profunda penis
Intertrabecular spaces, sinuses, or lacunæ of the corpus cavernosum (central and larger)
Lacunæ corporis cavernosi
2/1
*Cavernous vein[2]
*Vena cavernosa
Intertrabecular spaces, sinuses, or lacunæ of the corpus cavernosum (peripheral and smaller)
Lacunæ corporis cavernosi

FIG. 943.—LONGITUDINAL SECTION THROUGH THE CORPUS CAVERNOSUM OF THE PENIS: RAMIFICATION OF THE ARTERY OF THE CORPUS CAVERNOSUM (ARTERIA PROFUNDA PENIS); ARTERIÆ HELICINÆ, HELICINE ARTERIES; VENÆ CAVERNOSÆ, *CAVERNOUS VEINS[2]; THE FIBROUS CAPSULE, THE TRABECULÆ, AND THE INTERTRABECULAR SPACES, SINUSES, OR LACUNÆ OF THE CORPUS CAVERNOSUM. SEMIDIAGRAMMATIC.

---

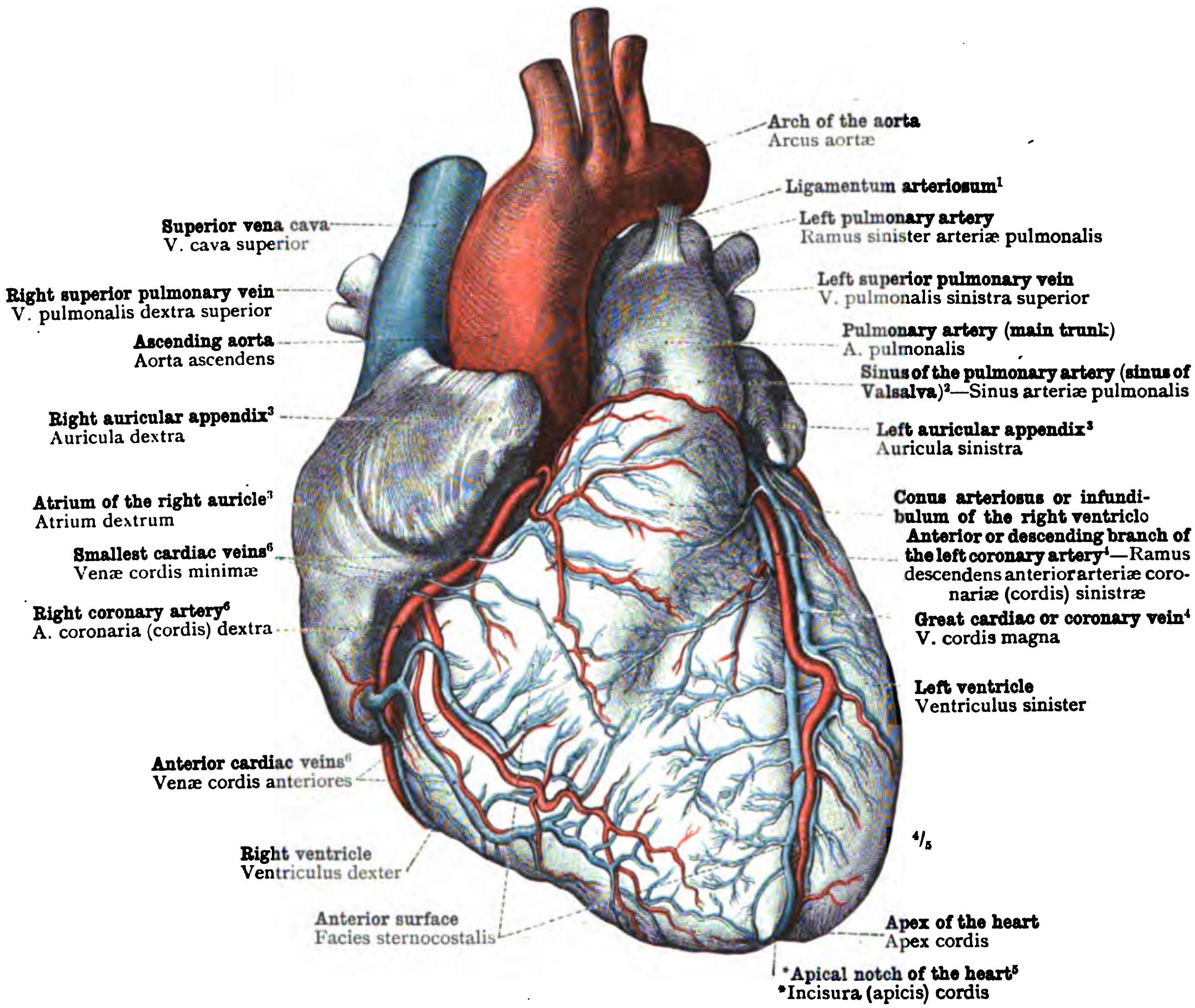
[1] In full, *venæ comites vel satellites arteriarum.*

[2] *Venæ Cavernosæ.*—The venous blood leaves the corpora cavernosa of the penis by two roots. A larger moiety leaves the crura to join the internal pudic veins by the *veins of the corpora cavernosa* (corresponding to the arteries of the same name). The remainder passes by small veins which pierce the fibrous capsule of the corpora cavernosa in the free region of the penis, and, anastomosing with cutaneous veins, join the dorsal vein of the penis. These latter are called by Toldt **cavernous veins.*—TR.

Vasa vasorum.—Vagina vasorum, the sheath of the bloodvessels.—The valves of the veins.—Corpus cavernosum of the penis.

COR

THE HEART


Arch of the aorta
Arcus aortæ
Ligamentum arteriosum[1]
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Superior vena cava
V. cava superior
Right superior pulmonary vein
V. pulmonalis dextra superior
Left superior pulmonary vein
V. pulmonalis sinistra superior
Pulmonary artery (main trunk)
A. pulmonalis
Ascending aorta
Aorta ascendens
Sinus of the pulmonary artery (sinus of Valsalva)[2]—Sinus arteriæ pulmonalis
Right auricular appendix[3]
Auricula dextra
Left auricular appendix[3]
Auricula sinistra
Conus arteriosus or infundibulum of the right ventriclo
Atrium of the right auricle[3]
Atrium dextrum
Anterior or descending branch of the left coronary artery[4]—Ramus descendens anterior arteriæ coronariæ (cordis) sinistræ
Smallest cardiac veins[6]
Venæ cordis minimæ
Great cardiac or coronary vein[4]
V. cordis magna
Right coronary artery[6]
A. coronaria (cordis) dextra
Left ventricle
Ventriculus sinister
Anterior cardiac veins[6]
Venæ cordis anteriores
4/5
Right ventricle
Ventriculus dexter
Anterior surface
Facies sternocostalis
Apex of the heart
Apex cordis
*Apical notch of the heart[5]
*Incisura (apicis) cordis

[1] See Appendix, note 111. [2] See Appendix, note 112. [3] See Appendix, note 113.

[4] These vessels are named by Macalister the ***anterior interventricular artery*** and ***vein***.—Tr.

[5] **Apical Notch of the Heart.*—This is merely the apical portion of the ***interventricular groove***, ***furrow***, or ***sulcus***.—Tr.

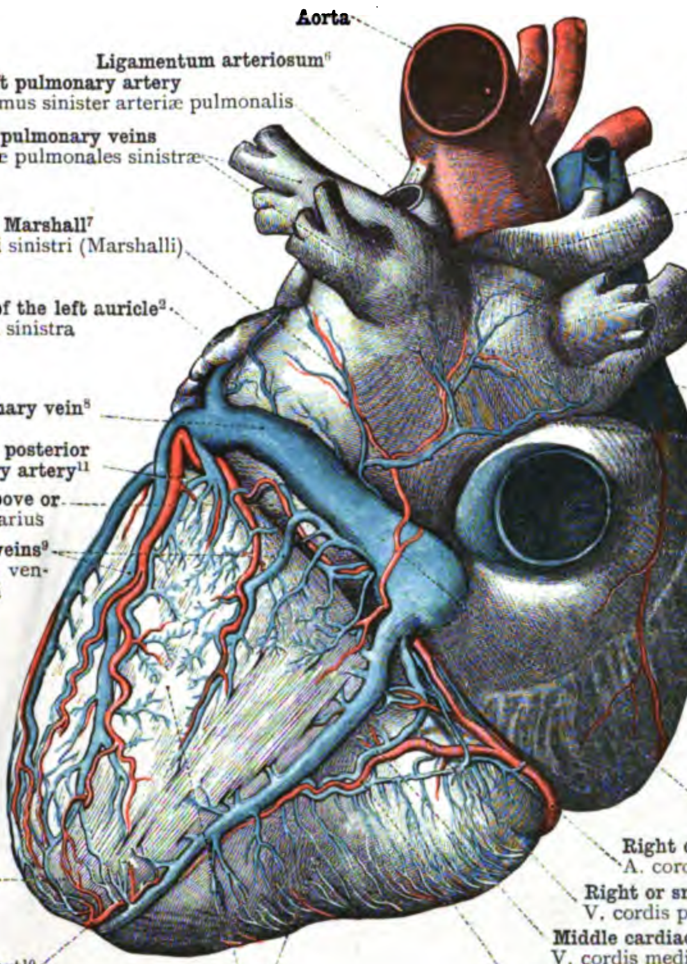
[6] See Appendix, note 114.

[7] *Borders of the Heart.*—These are not mentioned by the author in tbe original work. The ***upper*** or ***left border***, conspicuous in the present figure, is shorter, rounder, and thicker than the other, hence it is often called ***margo obtusus***; the ***lower*** or ***right border***, conspicuous in Fig. 945, is longer, and is thin compared with the other: for this reason it : distinguished as ***margo acutus***.—Tr.

FIG. 944.—THE HEART SEEN FROM BEFORE, WITH INJECTED CORONARY VESSELS: THE RIGHT CORONARY ARTERY, ARTERIA CORONARIA (CORDIS) DEXTRA; THE ANTERIOR OR DESCENDING BRANCH OF THE LEFT CORONARY ARTERY; THE COMMENCEMENT OF THE GREAT CARDIAC OR CORONARY VEIN, VENA CORDIS MAGNA; THE ANTERIOR CARDIAC AND THE SMALLEST CARDIAC VEINS, VENÆ CORDIS ANTERIORES ET VENÆ CORDIS MINIMÆ. THE LIGAMENTUM ARTERIOSUM, OR LIGAMENT OF BOTALLUS (*see Appendix, note* 111). MARGO OBTUSUS CORDIS, THE UPPER OR LEFT BORDER OF THE HEART (*see note* 7 *above*).

The cavities of the heart have been injected with tallow.

External Appearance and Bloodvessels of the Heart.


Aorta
Ligamentum arteriosum[6]
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Left pulmonary veins
Venæ pulmonales sinistræ
Oblique vein of Marshall[7]
V. obliqua atrii sinistri (Marshalli)
Atrium of the left auricle[2]
Auricula sinistra
Great cardiac or coronary vein[8]
V. cordis magna
Marginal branch of the posterior division of the left coronary artery[11]
Auriculoventricular groove or furrow—Sulcus coronarius
Posterior cardiac veins[9]
Venæ posteriores ventriculi sinistri
Apex of the heart
Apex cordis
*Apical notch of the heart[10]
*Incisura (apicis) cordis
Posterior surface—Facies diaphragmatica
Superior vena cava and the proximal extremity of the azygos vein[1]
Vena cava superior et extremitas superior venæ azygos
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Right pulmonary veins
Venæ pulmonales dextræ
Atrium of the left auricle[2]
Atrium sinistrum
Posterior interauricular groove or furrow[13]
Sulcus longitudinalis posterior (interauricularis)
Inferior vena cava
V. cava inferior
Sinus venosus of the right auricle[3]
Sinus venarum (cavarum)
Sulcus terminalis of the right auricle[3]
Sulcus terminalis atrii dextri
Atrium of the right auricle[2]
Atrium dextrum
4/5
Coronary sinus
Sinus coronarius
Right coronary artery[4]
A. coronaria (cordis) dextra
Right or small cardiac vein
V. cordis parva
Middle cardiac vein[5]
V. cordis media
Descending branch of the right coronary artery, or posterior interventricular artery[4]—Ramus descendens posterior arteriæ coronariæ (cordis) dextræ

[1] Sometimes called the *right* or *large azygos vein.*
[3] See Appendix, note [115].
[5] Named by Macalister the *posterior interventricular vein.*
[7] See Appendix, note [117].
[9] Called by Macalister the *left marginal veins.*
[11] Named by Macalister the *left marginal artery.*
[13] See note [5] to p. 566.

[2] See Appendix, note [113].
[4] See Appendix, note [116].
[6] See Appendix. note [111].
[8] Ending in the *coronary sinus.*
[10] See note [5] to p. 562.
[12] See Appendix, note [118].

FIG. 945.—THE HEART SEEN FROM BEHIND; WITH INJECTED CORONARY VESSELS: THE RIGHT CORONARY ARTERY, ARTERIA CORONARIA (CORDIS) DEXTRA, WITH ITS DESCENDING BRANCH, RAMUS DESCENDENS POSTERIOR (POSTERIOR INTERVENTRICULAR ARTERY); THE POSTERIOR OR TRANSVERSE BRANCH OF THE LEFT CORONARY ARTERY, RAMUS CIRCUMFLEXUS ARTERIÆ CORONARIÆ (CORDIS) SINISTRÆ, GIVING OFF THE LARGE MARGINAL BRANCH; THE GREAT CARDIAC OR CORONARY VEIN, VENA CORDIS MAGNA, TERMINATING IN THE CORONARY SINUS, SINUS CORONARIUS; THE MIDDLE AND THE RIGHT OR SMALL CARDIAC VEINS, VENÆ CORDIS MEDIA ET PARVA; THE OBLIQUE VEIN OF MARSHALL, VENA OBLIQUA ATRII SINISTRI (MARSHALLI). THE SULCUS TERMINALIS OF THE RIGHT AURICLE, SULCUS TERMINALIS ATRII DEXTRI; AND THE SINUS VENOSUS, SINUS VENARUM (CAVARUM). *CORONA CORDIS (*see Appendix, note* [118]), BASIS CORDIS (*see Appendix, note* [118]), AND THE INFERIOR SURFACE (FACIES DIAPHRAGMATICA) OF THE HEART. MARGO ACUTUS CORDIS, THE LOWER OR RIGHT BORDER OF THE HEART (*see note* [7] *on p.* 562).

The same preparation as that seen in Fig. 944, viewed in this case from behind.

External Appearance and Bloodvessels of the Heart.

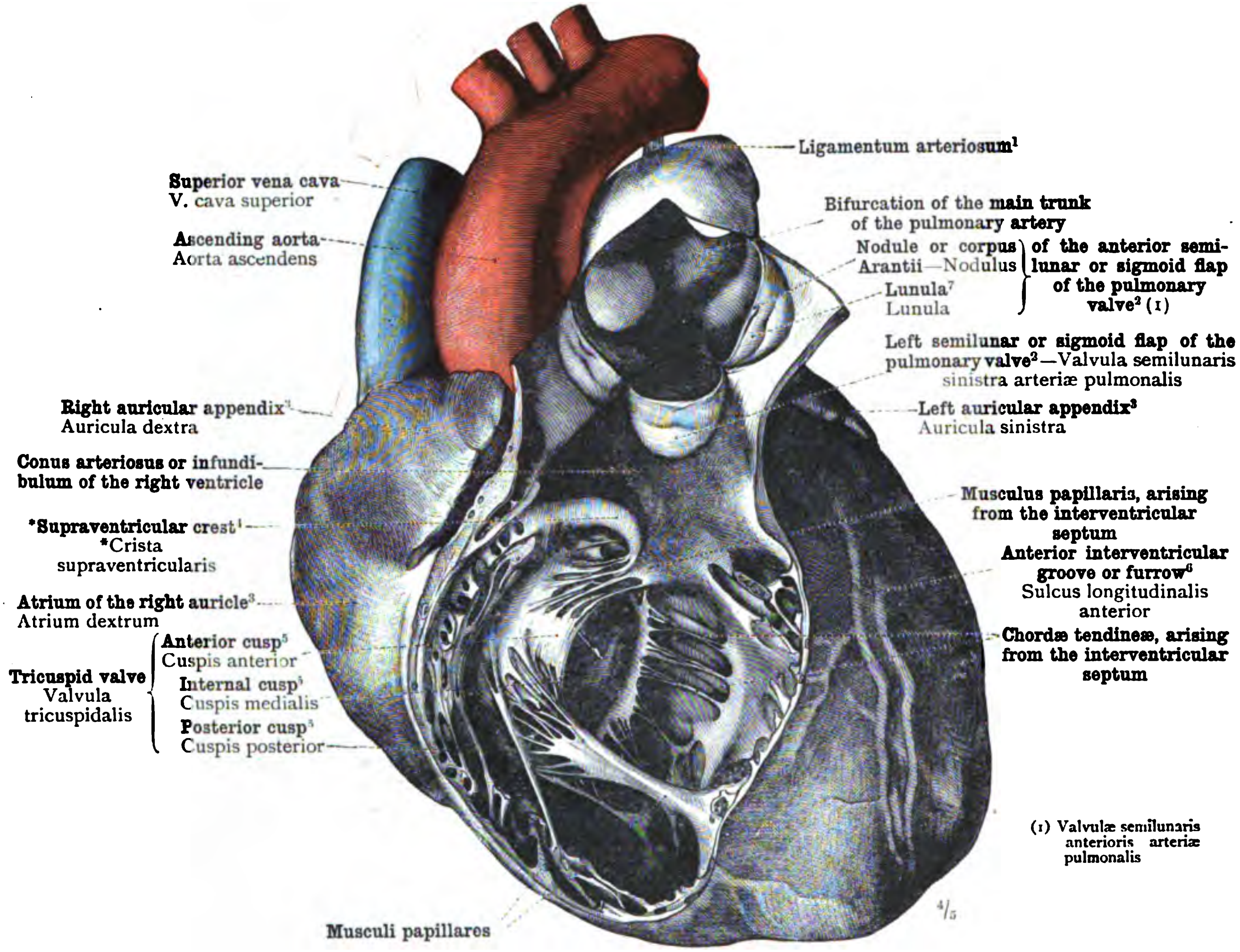

Ligamentum arteriosum[1]
Superior vena cava
V. cava superior
Bifurcation of the main trunk of the pulmonary artery
Ascending aorta
Aorta ascendens
Nodule or corpus Arantii—Nodulus
Lunula[7]
Lunula
of the anterior semilunar or sigmoid flap of the pulmonary valve[2] (1)
Left semilunar or sigmoid flap of the pulmonary valve[2]—Valvula semilunaris sinistra arteriæ pulmonalis
Right auricular appendix[3]
Auricula dextra
Left auricular appendix[3]
Auricula sinistra
Conus arteriosus or infundibulum of the right ventricle
Musculus papillaris, arising from the interventricular septum
*Supraventricular crest[4]
*Crista supraventricularis
Anterior interventricular groove or furrow[6]
Sulcus longitudinalis anterior
Atrium of the right auricle[3]
Atrium dextrum
Chordæ tendineæ, arising from the interventricular septum
Tricuspid valve
Valvula tricuspidalis
Anterior cusp[5]
Cuspis anterior
Internal cusp[5]
Cuspis medialis
Posterior cusp[5]
Cuspis posterior
(1) Valvulæ semilunaris anterioris arteriæ pulmonalis
4/5
Musculi papillares

FIG. 946.—THE HEART SEEN FROM BEFORE.

The anterior wall of the right ventricle and of the conus arteriosus or infundibulum has been removed; the main trunk of the pulmonary artery, arteria pulmonalis, has been opened by an incision passing from a point between the anterior and the right semilunar or sigmoid flaps of the pulmonary valve[2] to the bifurcation, and the anterior wall of the artery has been turned to the left. In this manner the tricuspid valve, valvula tricuspidalis, with its papillary muscles, musculi papillares, and tendinous chords, chordæ tendineæ, and also the semilunar or sigmoid flaps of the pulmonary valve with their nodules, or corpora Arantii, and lunulæ, have been brought into view. The heart had previously been hardened in the distended state (*i.e.*, in diastole) by immersion in chromic acid solution and alcohol.

---

[1] See Appendix, note 111.

[2] *Flaps of the Aortic and Pulmonary Valves.*—These are differently designated by different authorities. I. The *Pulmonary Valve.* According to Von Langer and Toldt, the flaps of this valve are *anterior*, *right*, and *left*; according to Quain, they are *right*, *left*, and *posterior*; and according to Macalister, they are (1) *anterior* and to the left, (2) posterior and to the *right*, and (3) posterior and to the *left*. II. The *Aortic Valve.* According to Von Langer and Toldt, the flaps of this valve are *posterior*, *right*, and *left*; according to Quain, they are *anterior*, *right*, and *left*; and according to Macalister, they are (1) behind and to the right, (2) forward and to the right, and (3) forward and to the left. The position of these flaps can be accurately determined only by the examination of frozen sections of the thorax. The eleventh plate of Braune's "Atlas of Topographical Anatomy" (English edition) gives an excellent view of the aortic and pulmonary valves, and if the arrangement there figured is a normal one, Quain's description is certainly to be preferred. In the text, however, I follow Toldt's nomenclature of the flaps.—TR.

[3] See Appendix, note 113.

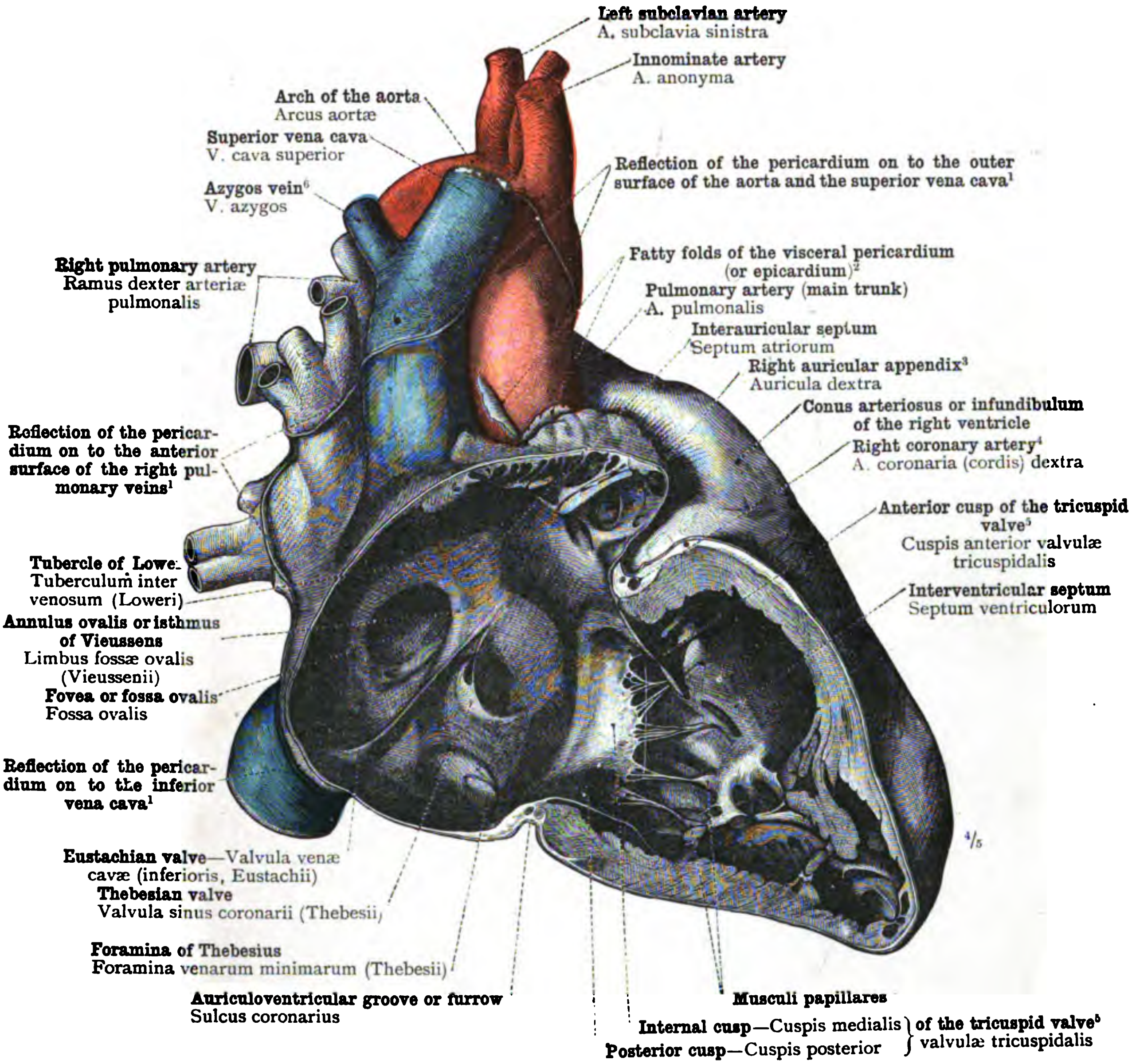
[4] **Supraventricular Crest.*—"On the inner wall of the right ventricle, between the *ostium venosum* (tricuspid orifice) and the conus arteriosus (or infundibulum), there is an eminence that projects freely into the ventricular cavity: this is the *crista supraventricularis.* Thus, whereas on the left side of the heart the mitral and aortic orifices are closely approximated one to the other, and are surrounded by a common ring of muscular tissue, on the right side of the heart the tricuspid and pulmonary orifices are a little distance apart, and each is surrounded by its own ring of muscular tissue." (Von Langer and Toldt, *op. cit.*, p. 481). Quain (*op. cit.*, vol. ii., part ii., pp. 358, 359), speaking of the tricuspid and pulmonary orifices, writes: "Between the two the wall of the cavity projects downwards in the form of a thick, rounded muscular partition, which corresponds to the beginning of the aorta from the left ventricle"; but he gives the structure in question no name. Macalister (*op. cit.*, p. 327) writes: "Between the auriculoventricular and the pulmonic openings is an area in the septal wall crossed by oblique pilasters, called the *fleshy pons.*"—TR.

[5] *Tricuspid Valve.*—The *cusps* or *flaps* of this valve are variously named by different authorities. *Cuspis anterior*, the *anterior cusp* of Toldt, is similarly named by Macalister, but by Quain is called the *infundibular* or *left flap*; *cuspis medialis*, the *internal cusp* of Toldt, is called the *right flap* both by Quain and by Macalister; *cuspis posterior*, the *posterior cusp* of Toldt, is called *posterior* also by Macalister, and by Quain the *posterior* or *septal flap*.—TR.

[6] See note 5 to p. 566.

[7] *Lunula.*—This term denotes the thin, narrow portion at the free edge of the semilunar flaps of the aortic and pulmonary valves. Toldt, however, describes *one* lunula in each flap, in the middle of which is the nodule or corpus Arantii; whereas English anatomists recognise *two* lunulæ in each flap, separated from one another by the nodule.—TR.

Right ventricle—Ventriculus dexter.


Left subclavian artery
A. subclavia sinistra
Innominate artery
A. anonyma
Arch of the aorta
Arcus aortæ
Superior vena cava
V. cava superior
Azygos vein[6]
V. azygos
Reflection of the pericardium on to the outer surface of the aorta and the superior vena cava[1]
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Fatty folds of the visceral pericardium (or epicardium)[2]
Pulmonary artery (main trunk)
A. pulmonalis
Interauricular septum
Septum atriorum
Right auricular appendix[3]
Auricula dextra
Conus arteriosus or infundibulum of the right ventricle
Right coronary artery[4]
A. coronaria (cordis) dextra
Reflection of the pericardium on to the anterior surface of the right pulmonary veins[1]
Anterior cusp of the tricuspid valve[5]
Cuspis anterior valvulæ tricuspidalis
Tubercle of Lower
Tuberculum intervenosum (Loweri)
Interventricular septum
Septum ventriculorum
Annulus ovalis or isthmus of Vieussens
Limbus fossæ ovalis (Vieussenii)
Fovea or fossa ovalis
Fossa ovalis
Reflection of the pericardium on to the inferior vena cava[1]
4/5
Eustachian valve—Valvula venæ cavæ (inferioris, Eustachii)
Thebesian valve
Valvula sinus coronarii (Thebesii)
Foramina of Thebesius
Foramina venarum minimarum (Thebesii)
Auriculoventricular groove or furrow
Sulcus coronarius
Musculi papillares
Internal cusp—Cuspis medialis
Posterior cusp—Cuspis posterior
of the tricuspid valve[5]
valvulæ tricuspidalis

---

[1] Or junction of the *parietal* and *visceral pericardium* (see also note [2]).

[2] *Epicardium.*—The pericardium, like other serous membranes, consists of *outer* and *inner*, or *parietal* and *visceral* layers. The visceral or *cardiac* pericardium is called by Toldt the *epicardium*, and the latter name is occasionally used also in England.—Tr.

[3] See Appendix, note 113.

[4] See Appendix, note 114.

[5] See note 5 to p. 564.

[6] Sometimes called the *right* or *large azygos vein*.

Fig. 947.—The Heart seen from the Right Side.

The heart having been hardened in formalin in the distended state (*i.e.*, in diastole), the right portion of the ventricles and the auricles was removed by a section passing upwards from the apex of the heart to the outer side of the orifices of the superior and inferior venæ cavæ. In the right ventricle, ventriculus dexter, the following structures are seen: The anterior, posterior, and internal cusps of the tricuspid valve (*see note* [5] *to p.* 564), also the musculi papillares and the chordæ tendineæ that arise from the interventricular septum. In the right auricle we see the fovea or fossa ovalis, with the annulus ovalis or isthmus of Vieussens, and the tubercle of Lower; also the orifices of the venæ cavæ, the Eustachian valve, the orifice of the coronary sinus with the Thebesian valve, and the cavity of the right auricular appendix (auricula dextra). On the aorta, the superior vena cava, and the right pulmonary veins, we see the reflection of the parietal pericardium to form the visceral pericardium (*see note* [2] *above*).

The right auricle—Atrium dextrum.—The right ventricle—Ventriculus dexter.

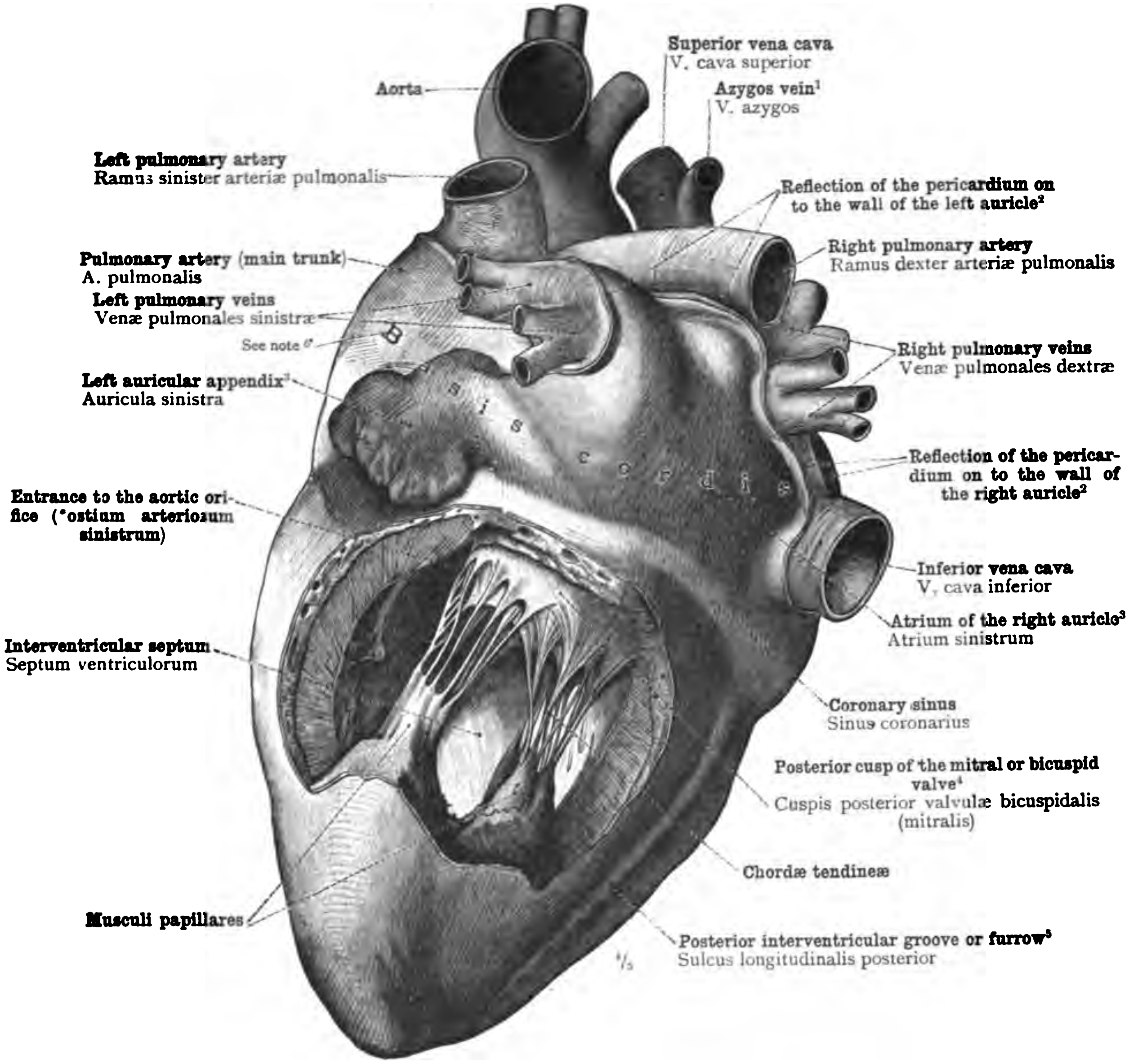

Aorta
Superior vena cava
V. cava superior
Azygos vein[1]
V. azygos
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Reflection of the pericardium on to the wall of the left auricle[2]
Pulmonary artery (main trunk)
A. pulmonalis
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Left pulmonary veins
Venæ pulmonales sinistræ
See note 6
Right pulmonary veins
Venæ pulmonales dextræ
Left auricular appendix[3]
Auricula sinistra
B a s i s c o r d i s
Reflection of the pericardium on to the wall of the right auricle[2]
Entrance to the aortic orifice (*ostium arteriosum sinistrum)
Inferior vena cava
V. cava inferior
Atrium of the right auricle[3]
Atrium sinistrum
Interventricular septum
Septum ventriculorum
Coronary sinus
Sinus coronarius
Posterior cusp of the mitral or bicuspid valve[4]
Cuspis posterior valvulæ bicuspidalis (mitralis)
Chordæ tendineæ
Musculi papillares
Posterior interventricular groove or furrow[5]
Sulcus longitudinalis posterior
1/5

FIG. 948.—THE HEART SEEN FROM THE LEFT SIDE AND BELOW.

In the left ventricle, ventriculus sinister, which has been opened by the removal of a portion of its posterior wall, the mitral or bicuspid valve, valvula bicuspidalis (mitralis), the two musculi papillares, and the chordæ tendineæ of the latter, are displayed. At the base of the heart the reflection of the parietal pericardium to form the visceral pericardium of the auricles is seen (*see notes* 1 *and* 2 *to p.* 565). The preparation is the same as that shown in Fig. 946.

---

[1] Sometimes called the *right* or *large azygos vein.*

[2] Or junction of the *parietal* with the *visceral pericardium* (epicardium); see also note 2 to page 565.

[3] See Appendix, note 113.

[4] *Mitral or Bicuspid Valve.*—The *cusps* or *flaps* of this valve are named *anterior* and *posterior* respectively, but do not lie exactly in front and behind one another in coronal planes. The *anterior* flap, which is the larger of the two, is to the right as well as in front, between the mitral and the aortic orifices (hence it is sometimes named the *aortic* flap of the mitral valve); the *posterior* and smaller flap lies to the left of as well as behind the other, and close to the wall of the ventricle. At each side of the orifice, in the angles of junction of the large flaps, are small intermediate flaps.—TR.

[5] *Sulcus Longitudinalis.*—Strictly, this term, as used by the author, denotes, not only the interventricular groove or furrow (anterior or posterior, as the case may be), but in addition the much less strongly marked interauricular groove or furrow. In the text, however, I have translated the term *sulcus longitudinalis*, either as *interventricular* or as *interauricular groove* or *furrow*, according as the ventricular or the auricular part of the *longitudinal sulcus is indicated in the several figures.—TR.

[6] *Basis Cordis, or Corona Cordis.*—These terms are used by the author as alternative names for that portion of the heart (together with the intrapericardial extremities of the great vessels) that lies above and to the right of the auriculoventricular groove. In England, however, the term *base of the heart* has a different signification. (See also Appendix, note 118.)—TR.

Left ventricle—Ventriculus sinister.

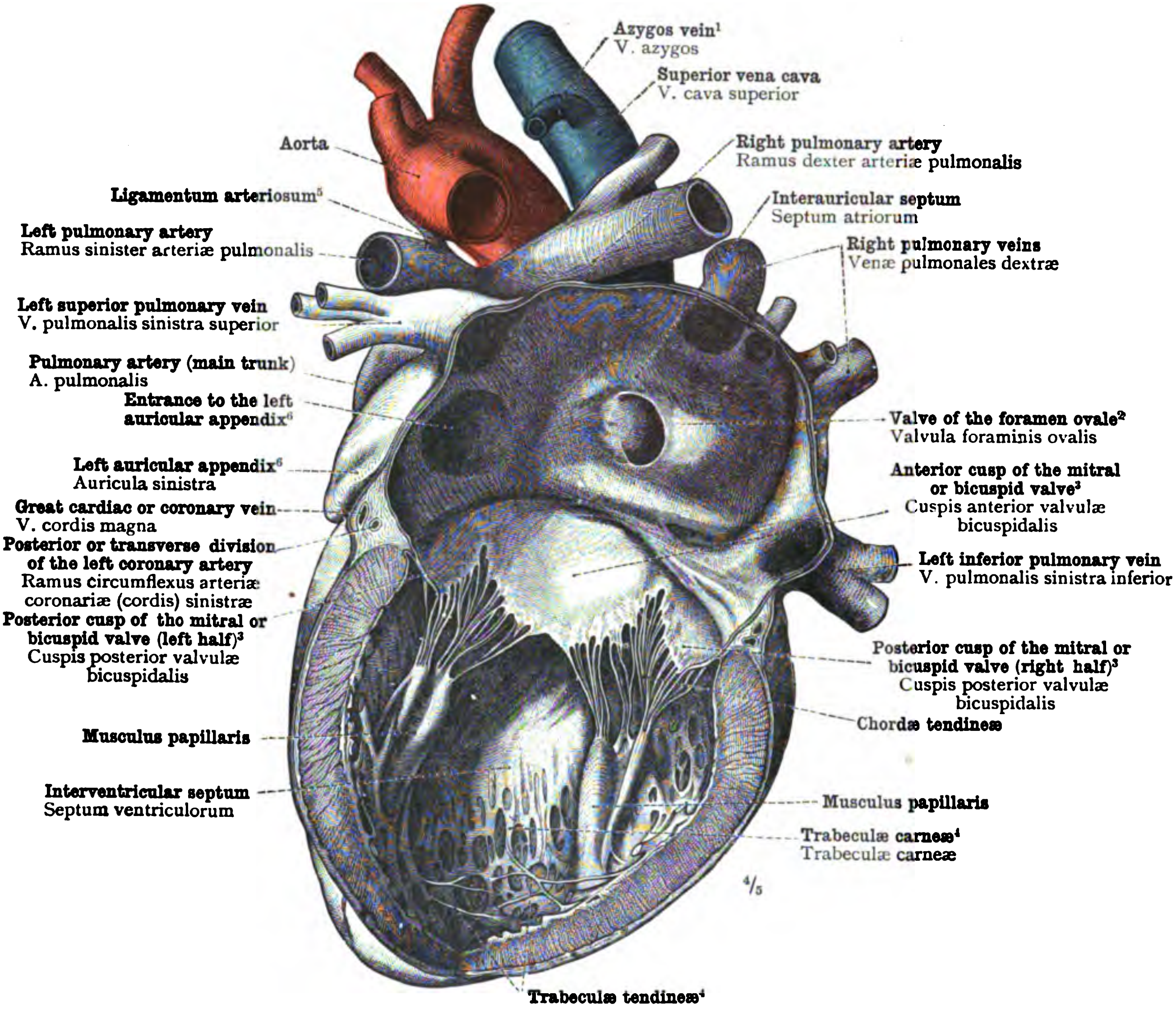

Azygos vein[1]
V. azygos
Superior vena cava
V. cava superior
Aorta
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Ligamentum arteriosum[5]
Interauricular septum
Septum atriorum
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Right pulmonary veins
Venæ pulmonales dextræ
Left superior pulmonary vein
V. pulmonalis sinistra superior
Pulmonary artery (main trunk)
A. pulmonalis
Entrance to the left auricular appendix[6]
Valve of the foramen ovale[2]
Valvula foraminis ovalis
Left auricular appendix[6]
Auricula sinistra
Anterior cusp of the mitral or bicuspid valve[3]
Cuspis anterior valvulæ bicuspidalis
Great cardiac or coronary vein
V. cordis magna
Left inferior pulmonary vein
V. pulmonalis sinistra inferior
Posterior or transverse division of the left coronary artery
Ramus circumflexus arteriæ coronariæ (cordis) sinistræ
Posterior cusp of the mitral or bicuspid valve (left half)[3]
Cuspis posterior valvulæ bicuspidalis
Posterior cusp of the mitral or bicuspid valve (right half)[3]
Cuspis posterior valvulæ bicuspidalis
Chordæ tendineæ
Musculus papillaris
Interventricular septum
Septum ventriculorum
Musculus papillaris
Trabeculæ carneæ[4]
Trabeculæ carneæ
4/5
Trabeculæ tendineæ[4]

FIG. 949.—THE HEART SEEN FROM THE LEFT SIDE.

The left ventricle and the left auricle have been opened by an incision passing upwards from the apex of the heart to the space between the auricular orifices of the left pulmonary veins, and through the upper wall of the left auricle to the space between the auricular orifices of the right pulmonary veins, and the lateral walls of the cavities have been drawn outwards. In the left ventricle, ventriculus sinister, we see the divided posterior flap, cuspis posterior, and the intact anterior or aortic flap, cuspis anterior, of the mitral or bicuspid valve; also the anterior and posterior papillary muscles, musculi papillares, with their chordæ tendineæ; also the interventricular septum, septum ventriculorum, the trabeculæ carneæ, and, near the apex, a few free tendinous trabeculæ, trabeculæ tendineæ. In the left auricle we see the orifices of the four pulmonary veins, venæ pulmonales; the interauricular septum, septum atriorum, with its membranous portion, representing the valve of the foramen ovale, and the entrance to the left auricular appendix.

Left auricle—Atrium sinistrum.—Left ventricle—Ventriculus sinister.

---

[1] Called also the *right* or *large azygos vein.*

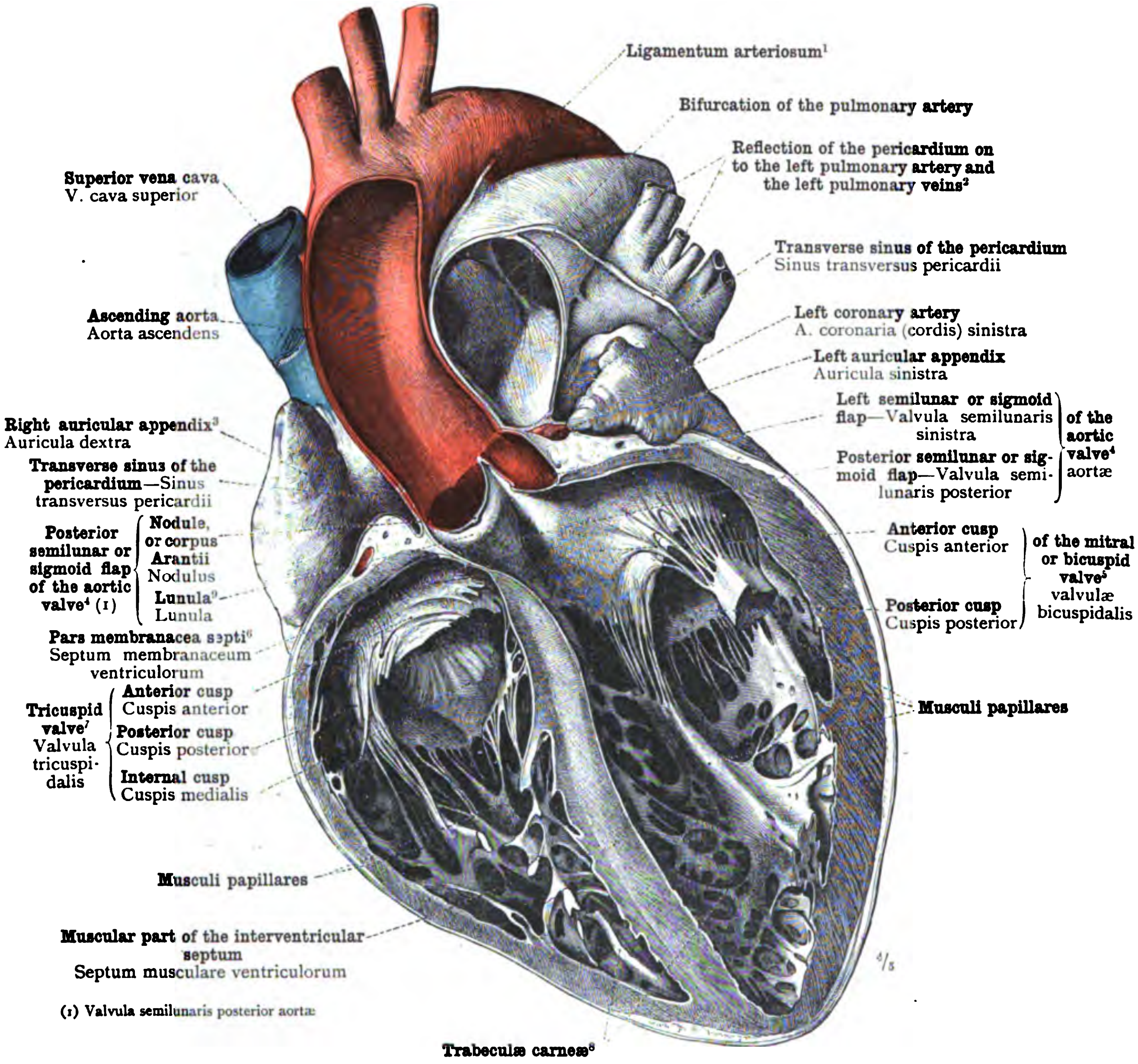
[2] Called by Macalister *valvula sinistra sacci venosi.*

[3] See note 4 to p. 566.

[4] *Columnæ Carneæ.*—These muscular bands, projecting inwards from the walls into the cavities of the ventricles, are of two kinds: some are simply ridges, termed *pilasters;* others form bridges or beams, attached at their extremities but free in the middle, known as *trabeculæ.* Some of the trabeculæ, near the apex of the heart, are tendinous throughout the extent of their free parts, and these are distinguished as *trabeculæ tendineæ* from the more numerous, *trabeculæ carneæ,* which are fleshy throughout.—TR.

[5] See Appendix, note 111.

[6] See Appendix, note 113.


Ligamentum arteriosum[1]
Bifurcation of the pulmonary artery
Reflection of the pericardium on to the left pulmonary artery and the left pulmonary veins[2]
Superior vena cava
V. cava superior
Transverse sinus of the pericardium
Sinus transversus pericardii
Ascending aorta
Aorta ascendens
Left coronary artery
A. coronaria (cordis) sinistra
Left auricular appendix
Auricula sinistra
Left semilunar or sigmoid flap—Valvula semilunaris sinistra
Posterior semilunar or sigmoid flap—Valvula semilunaris posterior
of the aortic valve[4] aortæ
Right auricular appendix[3]
Auricula dextra
Transverse sinus of the pericardium—Sinus transversus pericardii
Posterior semilunar or sigmoid flap of the aortic valve[4] (1)
Nodule, or corpus Arantii
Nodulus
Lunula[9]
Lunula
Anterior cusp
Cuspis anterior
Posterior cusp
Cuspis posterior
of the mitral or bicuspid valve[5] valvulæ bicuspidalis
Pars membranacea septi[6]
Septum membranaceum ventriculorum
Tricuspid valve[7]
Valvula tricuspidalis
Anterior cusp
Cuspis anterior
Posterior cusp
Cuspis posterior
Internal cusp
Cuspis medialis
Musculi papillares
Musculi papillares
Muscular part of the interventricular septum
Septum musculare ventriculorum
4/5
(1) Valvula semilunaris posterior aortæ
Trabeculæ carneæ[8]

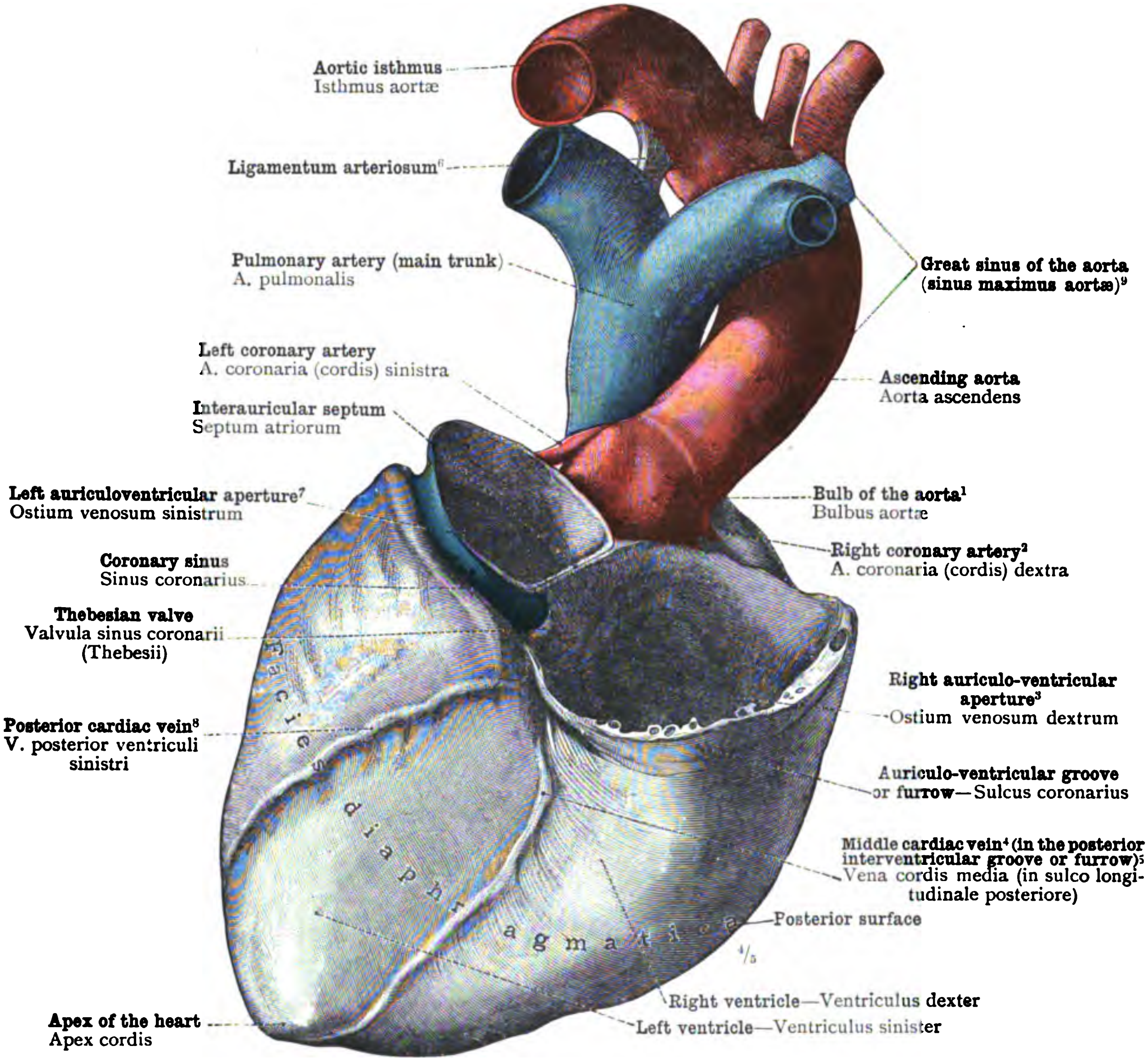
---

[1] See Appendix, note 111.
[2] Or junction of the *parietal* and *visceral pericardium*. (See also note 2 to p. 565).—Tr.
[3] See Appendix, note 113.
[4] See note 2 to p. 564.
[5] See note 4 to p. 566.
[6] The *membranous part of the interventricular septum* is sometimes spoken of as the *undefended space*.—Tr.
[7] See note 5 to p. 564.
[8] See note 4 to p. 567.
[9] See note 7 to p. 564.

FIG. 950.—THE HEART SEEN FROM BEFORE.

The organ having been hardened in formalin in the distended state (*i.e.*, in diastole), the anterior portion of the *cone of the heart (*i.e.*, the anterior portion of both ventricles—*see Appendix, note* [118]), the anterior half of the ascending aorta, and the main trunk of the pulmonary artery nearly as far as the bifurcation, were removed by a coronal section. In the opened *cone of the heart, we see the interventricular septum, at the top of which is the pars membranacea septi, or undefended space (septum membranaceum ventriculorum); all the cusps of the mitral and tricuspid valves; and also the musculi papillares with their chordæ tendineæ. Of the auricles, the right and the left auricular appendices are visible; and between these and the aorta, on the right, and the main trunk of the pulmonary artery, on the left, the entrances to the transverse sinus of the pericardium. In the aortic orifice (ostium arteriosum sinistrum), the posterior semilunar or sigmoid flap of the aortic valve (*see note* [2] *to p.* 564), with its nodule, or corpus Arantii, and its two lunulæ (*see note* [7] *to p.* 564), is preserved intact. On the anterior surface of the left pulmonary veins, the left pulmonary artery, and the superior vena cava, we see the reflection of the serous layer of the pericardium into the epicardium (*see notes* [1] *and* [2] *to p.* 565).

The Ventricles of the Heart and the Interventricular Septum.


Aortic isthmus
Isthmus aortæ
Ligamentum arteriosum[6]
Pulmonary artery (main trunk)
A. pulmonalis
Left coronary artery
A. coronaria (cordis) sinistra
Interauricular septum
Septum atriorum
Left auriculoventricular aperture[7]
Ostium venosum sinistrum
Coronary sinus
Sinus coronarius
Thebesian valve
Valvula sinus coronarii (Thebesii)
Posterior cardiac vein[8]
V. posterior ventriculi sinistri
Apex of the heart
Apex cordis
Great sinus of the aorta (sinus maximus aortæ)[9]
Ascending aorta
Aorta ascendens
Bulb of the aorta[1]
Bulbus aortæ
Right coronary artery[2]
A. coronaria (cordis) dextra
Right auriculo-ventricular aperture[3]
Ostium venosum dextrum
Auriculo-ventricular groove or furrow—Sulcus coronarius
Middle cardiac vein[4] **(in the posterior interventricular groove or furrow)**[5]
Vena cordis media (in sulco longitudinale posteriore)
Posterior surface
Facies diaphragmatica
4/5
Right ventricle—Ventriculus dexter
Left ventricle—Ventriculus sinister

[1] *Bulb of the Aorta.*—This name is often given to the somewhat enlarged portion of the ascending aorta immediately above the aortic valve, which contains the three *sinuses of Valsalva.*—Tr.

[2] See Appendix, note [114].

[3] Or *tricuspid orifice.*

[4] Called by Macalister the *posterior interventricular vein.*

[5] See note 5 to p. 566.

[6] See Appendix, note [111].

[7] Or *mitral orifice.*

[8] Called by Macalister the *left marginal vein.*

[9] See Appendix, note [128].

FIG. 951.—THE POSTERIOR SURFACE, FACIES DIAPHRAGMATICA, OF THE *CONE OF THE HEART (*i.e.*, THE VENTRICULAR PORTION OF THE HEART—*see Appendix, note* [118]), WITH THE MAIN TRUNK OF THE PULMONARY ARTERY AND ITS BIFURCATION, THE ASCENDING AORTA, AND THE ARCH OF THE AORTA. THE BULB OF THE AORTA, BULBUS AORTÆ; THE ORIGIN OF THE CORONARY ARTERIES, RIGHT AND LEFT, ARTERIÆ CORONARIÆ (CORDIS), DEXTRA ET SINISTRA. THE LIGAMENTUM ARTERIOSUM, OR LIGAMENT OF BOTALLO, AND THE AORTIC ISTHMUS, ISTHMUS AORTÆ.

The heart having been hardened in the distended state (*i.e.*, in diastole), the auricles were removed by a section passing immediately above the auriculoventricular groove or furrow (sulcus coronarius), and the coronary sinus was thus laid open as far as the terminal orifice through which it communicates with the right auricle.

The Ventricular Portion of the Heart with the Aorta and the Pulmonary Artery.

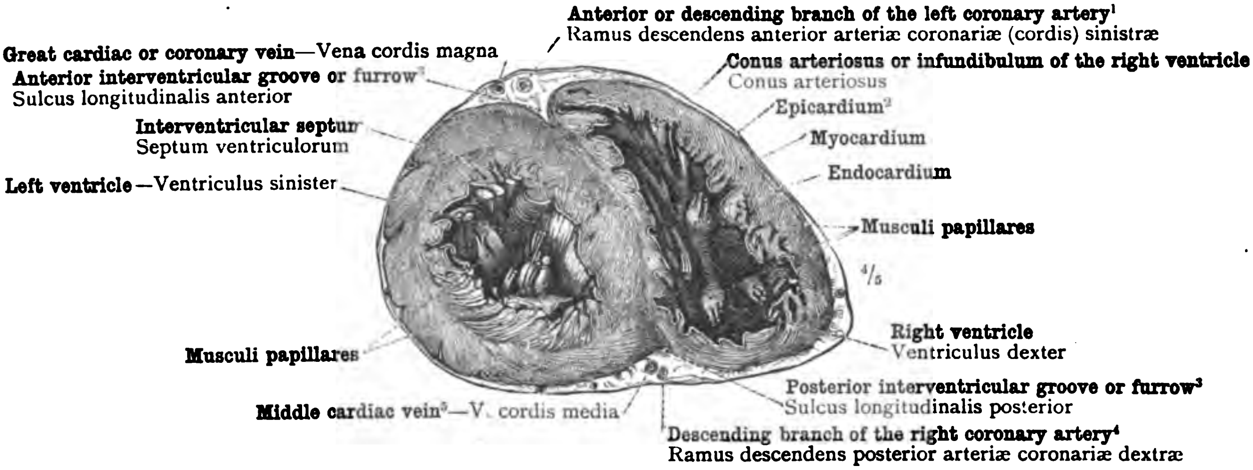
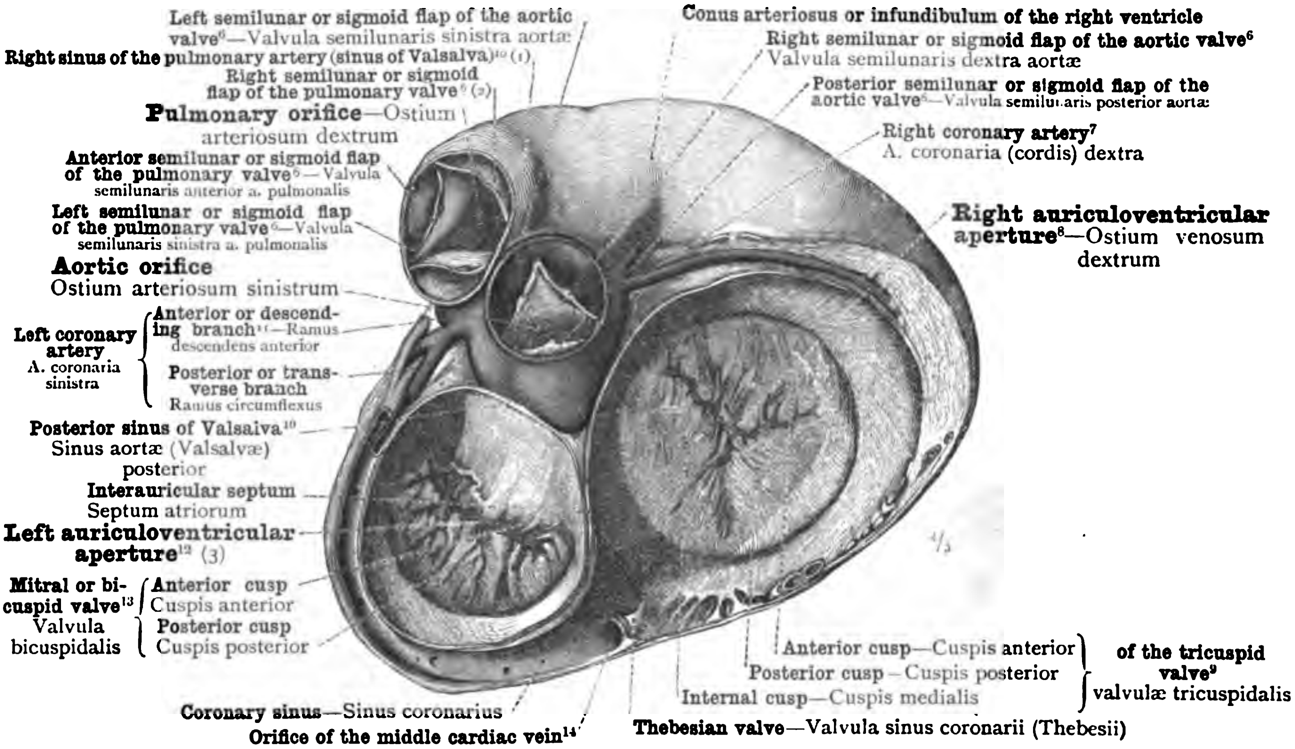

Anterior or descending branch of the left coronary artery[1]
Ramus descendens anterior arteriæ coronariæ (cordis) sinistræ
Great cardiac or coronary vein—Vena cordis magna
Anterior interventricular groove or furrow[3]
Sulcus longitudinalis anterior
Conus arteriosus or infundibulum of the right ventricle
Conus arteriosus
Interventricular septum
Septum ventriculorum
Epicardium[2]
Myocardium
Left ventricle—Ventriculus sinister
Endocardium
Musculi papillares
4/5
Right ventricle
Ventriculus dexter
Musculi papillares
Posterior interventricular groove or furrow[3]
Sulcus longitudinalis posterior
Middle cardiac vein[5]—V. cordis media
Descending branch of the right coronary artery[4]
Ramus descendens posterior arteriæ coronariæ dextræ

FIG. 952.—THE LOWER HALF OF THE TRANSVERSELY-DIVIDED *CONE OF THE HEART (*i.e.*, THE VENTRICULAR PORTION OF THE HEART—*see Appendix, note* [118]).

On the surface of the section we observe the nearly circular contour of the cavity of the left ventricle, and the sickle-shaped outline of that of the right ventricle; further, that the wall of the heart consists of the heart muscle, or myocardium, lined within by the endocardium, and enveloped without by the epicardium; and, finally, the notably greater thickness of the wall of the left ventricle.


Left semilunar or sigmoid flap of the aortic valve[6]—Valvula semilunaris sinistra aortæ
Right sinus of the pulmonary artery (sinus of Valsalva)[10] (1)
Right semilunar or sigmoid flap of the pulmonary valve[6] (2)
Pulmonary orifice—Ostium arteriosum dextrum
Anterior semilunar or sigmoid flap of the pulmonary valve[6]—Valvula semilunaris anterior a. pulmonalis
Left semilunar or sigmoid flap of the pulmonary valve[6]—Valvula semilunaris sinistra a. pulmonalis
Aortic orifice
Ostium arteriosum sinistrum
Left coronary artery
A. coronaria sinistra
Anterior or descending branch[11]—Ramus descendens anterior
Posterior or transverse branch
Ramus circumflexus
Posterior sinus of Valsalva[10]
Sinus aortæ (Valsalvæ) posterior
Interauricular septum
Septum atriorum
Left auriculoventricular aperture[12] (3)
Mitral or bicuspid valve[13]
Valvula bicuspidalis
Anterior cusp
Cuspis anterior
Posterior cusp
Cuspis posterior
Coronary sinus—Sinus coronarius
Orifice of the middle cardiac vein[14]
Conus arteriosus or infundibulum of the right ventricle
Right semilunar or sigmoid flap of the aortic valve[6]
Valvula semilunaris dextra aortæ
Posterior semilunar or sigmoid flap of the aortic valve[6]—Valvula semilunaris posterior aortæ
Right coronary artery[7]
A. coronaria (cordis) dextra
Right auriculoventricular aperture[8]—Ostium venosum dextrum
4/5
Anterior cusp—Cuspis anterior
Posterior cusp—Cuspis posterior
Internal cusp—Cuspis medialis
of the tricuspid valve[9]
valvulæ tricuspidalis
Thebesian valve—Valvula sinus coronarii (Thebesii)

(1) Sinus dexter arteriæ pulmonalis (2) Valvula semilunaris dextra arteriæ pulmonalis (3) Ostium venosum sinistrum

FIG. 953.—THE RELATIVE POSITION OF THE VALVES AND ORIFICES OF THE HEART, AND ALSO OF THE AORTA AND THE MAIN TRUNK OF THE PULMONARY ARTERY JUST ABOVE THEIR RESPECTIVE VALVES.

The section lays open the coronary sinus along its whole length as well as the adjoining portion of the great cardiac or coronary vein, and displays the Thebesian valve and the orifice of the middle cardiac vein. The valves are in the position that obtains during the cardiac systole, the auriculoventricular valves being closed, the pulmonary and aortic valves open.

---

[1] Called by Macalister the *anterior interventricular artery.*
[2] Or *visceral* or *cardiac pericardium*- see note [2] to p. 565.
[3] See note 5 to p. 566.
[4] Called by Macalister the *posterior interventricular artery*—see Appendix, note [114].
[5] Called by Macalister the *posterior interventricular vein.*
[6] See note [2] to p. 564.
[7] See Appendix, note [114].
[8] Or *tricuspid orifice.*
[9] See note [5] to p. 564.
[10] See Appendix, note [112].
[11] Called by Macalister the *anterior interventricular artery.*
[12] Or *mitral orifice.*
[13] See note [4] to p. 566.
[14] Called by Macalister the *posterior interventricular vein.*

The Mutual Relations of the Ventricles of the Heart and of the Cardiac Valves and Orifices.

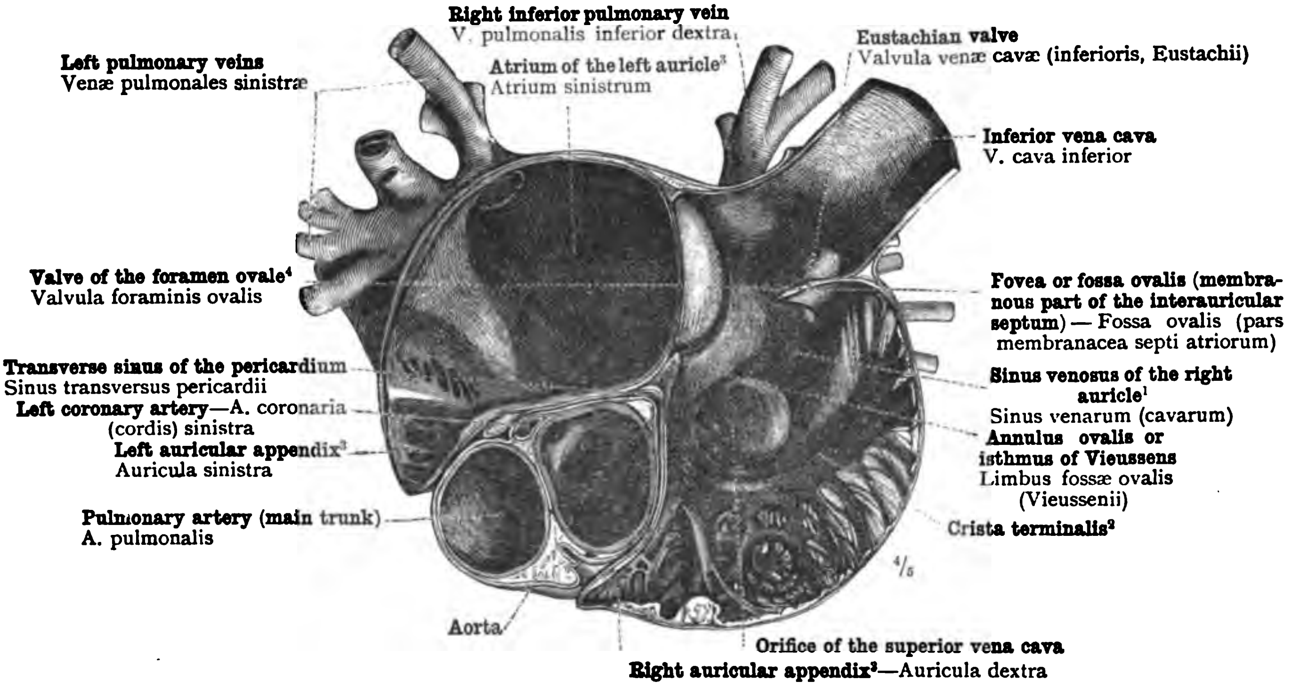

Right inferior pulmonary vein
V. pulmonalis inferior dextra
Left pulmonary veins
Venæ pulmonales sinistræ
Atrium of the left auricle[3]
Atrium sinistrum
Eustachian valve
Valvula venæ cavæ (inferioris, Eustachii)
Inferior vena cava
V. cava inferior
Valve of the foramen ovale[4]
Valvula foraminis ovalis
Fovea or fossa ovalis (membranous part of the interauricular septum) — Fossa ovalis (pars membranacea septi atriorum)
Transverse sinus of the pericardium
Sinus transversus pericardii
Left coronary artery—A. coronaria (cordis) sinistra
Left auricular appendix[3]
Auricula sinistra
Sinus venosus of the right auricle[1]
Sinus venarum (cavarum)
Annulus ovalis or isthmus of Vieussens
Limbus fossæ ovalis (Vieussenii)
Pulmonary artery (main trunk)
A. pulmonalis
Crista terminalis[2]
4/5
Aorta
Orifice of the superior vena cava
Right auricular appendix[3]—Auricula dextra

FIG. 954.—SINUS TRANSVERSUS PERICARDII, THE TRANSVERSE SINUS OF THE PERICARDIUM. MUSCULI PECTINATI AND CRISTA TERMINALIS OF THE RIGHT AURICLE[2]. SINUS VENOSUS[2]. THE MEMBRANOUS PART OF THE INTERAURICULAR SEPTUM.

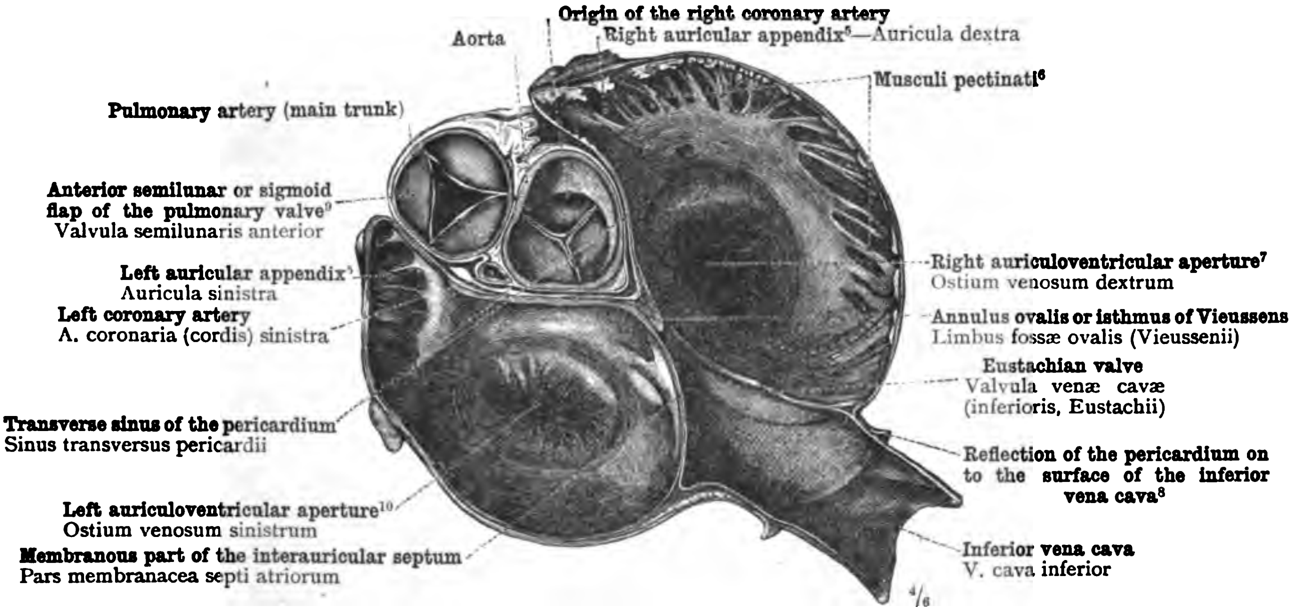

Origin of the right coronary artery
Aorta
Right auricular appendix[5]—Auricula dextra
Musculi pectinati[6]
Pulmonary artery (main trunk)
Anterior semilunar or sigmoid flap of the pulmonary valve[9]
Valvula semilunaris anterior
Right auriculoventricular aperture[7]
Ostium venosum dextrum
Left auricular appendix[5]
Auricula sinistra
Left coronary artery
A. coronaria (cordis) sinistra
Annulus ovalis or isthmus of Vieussens
Limbus fossæ ovalis (Vieussenii)
Eustachian valve
Valvula venæ cavæ (inferioris, Eustachii)
Transverse sinus of the pericardium
Sinus transversus pericardii
Reflection of the pericardium on to the surface of the inferior vena cava[8]
Left auriculoventricular aperture[10]
Ostium venosum sinistrum
Inferior vena cava
V. cava inferior
Membranous part of the interauricular septum
Pars membranacea septi atriorum
4/6

FIG. 955.—THE SEMILUNAR OR SIGMOID FLAPS OF THE AORTIC AND PULMONARY VALVES, WITH THEIR NODULES, OR CORPORA ARANTII (NODULI VALVULARUM SEMILUNARUM). THE MEMBRANOUS PART OF THE INTERAURICULAR SEPTUM AND THE EUSTACHIAN VALVE.

The auricular portion of the heart was removed by a section passing through both auricular appendices, through the root of the aorta and of the pulmonary artery, and hemisecting the orifice and the proximal portion of the inferior vena cava. In Fig. 954 the upper segment, and in Fig. 955 the lower segment, of the heart is shown.

---

[1] See Appendix, note 115.

[2] *Crista Terminalis.*—This forms the boundary between the smooth wall of the *sinus venosus* (see Appendix, note 115) and the fasciculated wall of the rest of the auricle. The fasciculi themselves are called *musculi pectinati.* The inward projection of the *crista terminalis* (called by Macalister *tænia terminalis*) corresponds to the *sulcus terminalis* seen on the outside of the wall of the auricle (see Fig. 945, p. 563).

[3] See Appendix, note 113.

[4] Called by Macalister *valvula sinistra sacci venosi.*

[5] See Appendix, note 113.

[6] See note [2] above.

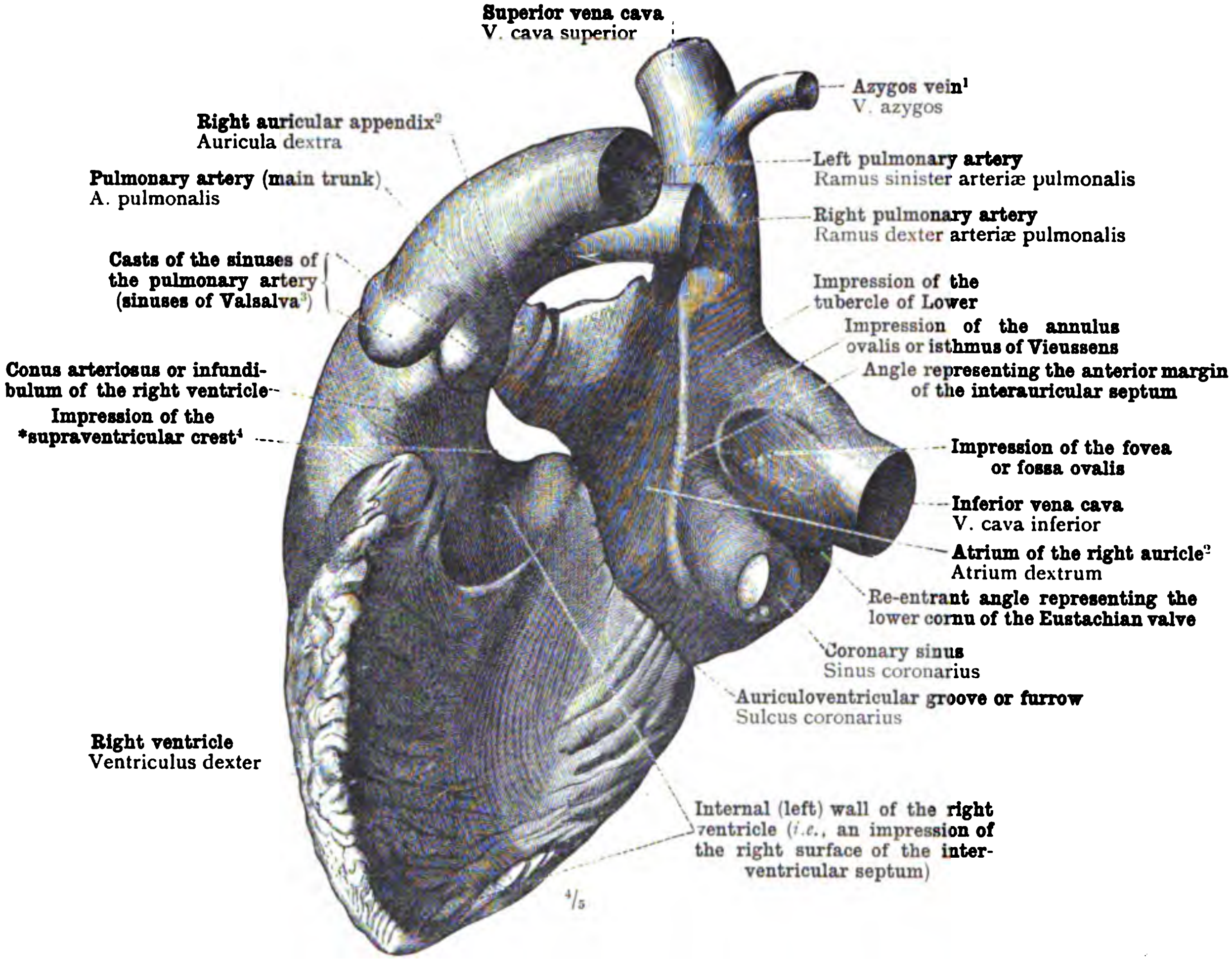
[7] Or *tricuspid orifice.*

[8] Or junction of the *parietal* and *visceral pericardium*—see note [2] to p. 565.

[9] See note [2] to p. 564.

[10] Or *mitral orifice.*

The Mutual Relations of the Auricles, the Aorta, and the Main Trunk of the Pulmonary Artery.


Superior vena cava
V. cava superior
Right auricular appendix[2]
Auricula dextra
Pulmonary artery (main trunk)
A. pulmonalis
Casts of the sinuses of the pulmonary artery (sinuses of Valsalva[3])
Conus arteriosus or infundibulum of the right ventricle
Impression of the *supraventricular crest[4]
Right ventricle
Ventriculus dexter
Azygos vein[1]
V. azygos
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Impression of the tubercle of Lower
Impression of the annulus ovalis or isthmus of Vieussens
Angle representing the anterior margin of the interauricular septum
Impression of the fovea or fossa ovalis
Inferior vena cava
V. cava inferior
Atrium of the right auricle[2]
Atrium dextrum
Re-entrant angle representing the lower cornu of the Eustachian valve
Coronary sinus
Sinus coronarius
Auriculoventricular groove or furrow
Sulcus coronarius
Internal (left) wall of the right ventricle (*i.e.*, an impression of the right surface of the interventricular septum)
4/5

[1] Called also the *right* or *large azygos vein*.

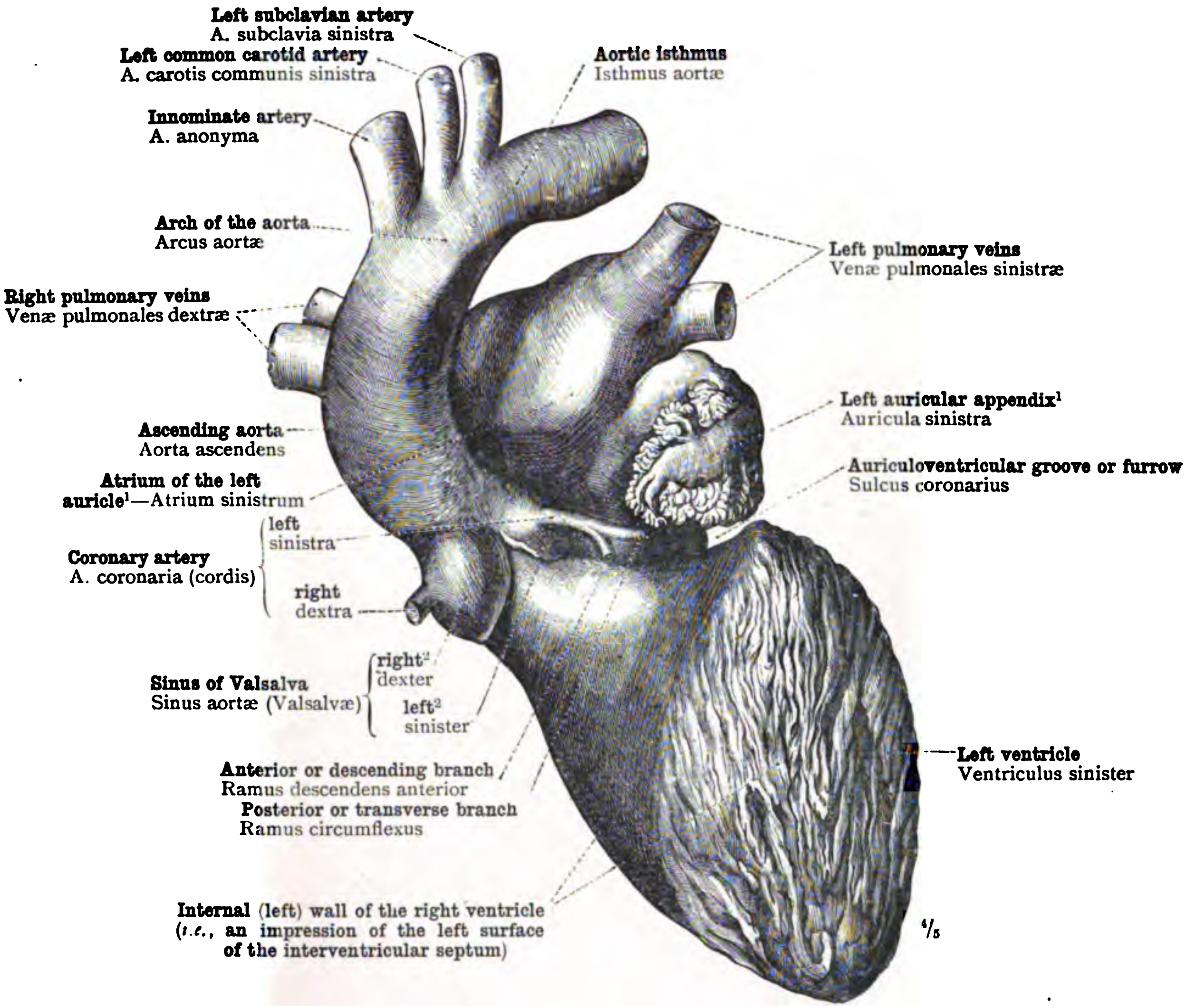
[2] See Appendix, note 113.

[3] See Appendix, note 112.

[4] See note 4 to p. 564.

Fig. 956.—Cast of the Interior of the Right Side of the Heart, with the Main Trunk and the Bifurcation of the Pulmonary Artery, the Proximal Extremities of the Superior and Inferior Venæ Cavæ, and the Coronary Sinus, seen from the Inner Side.

The Configuration of the Right Side of the Heart.



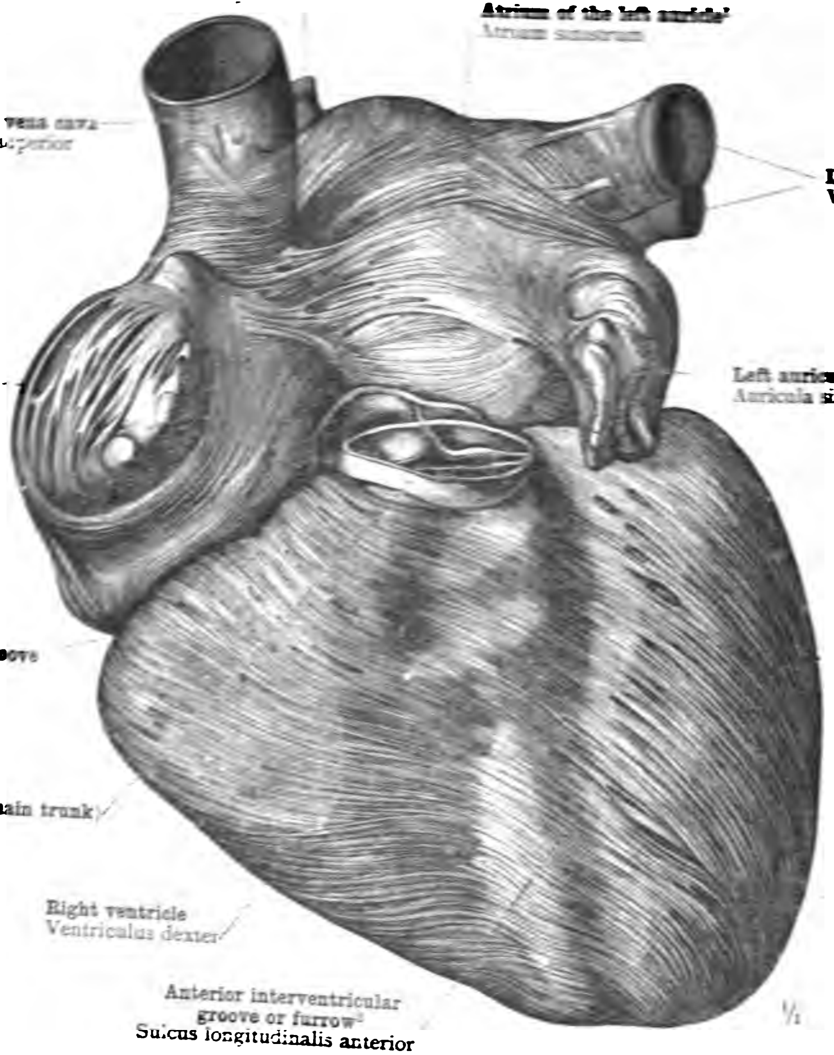
[1] See Appendix, note 113.

[2] Regarding the position and nomenclature of the several sinuses of Valsalva, the same considerations apply as regarding the several semilunar or sigmoid flaps of the aortic valve—see note [2] to p. 564.—Tr.

[3] Called by Macalister the *anterior interventricular artery*.

FIG. 957.—CAST OF THE INTERIOR OF THE LEFT SIDE OF THE HEART, WITH THE AORTA TO A POINT A LITTLE BEYOND THE ISTHMUS, THE COMMENCEMENT OF THE CORONARY ARTERIES, AND THE PROXIMAL EXTREMITIES OF THE SUPERIOR AND INFERIOR VENÆ CAVÆ, SEEN FROM THE INNER SIDE.

The Configuration of the Left Side of the Heart.


Right superior pulmonary vein
V. pulmonalis dextra superior
Atrium of the left auricle[1]
Atrium sinistrum
Superior vena cava
V. cava superior
Left pulmonary veins
Venae pulmonales sinistrae
Atrium of the right auricle[1]
Atrium dextrum
Left auricular appendix[1]
Auricula sinistra
Auriculoventricular groove or furrow
Sulcus coronarius
Left ventricle
Ventriculus sinister
Pulmonary artery (main trunk)
A. pulmonalis
Right ventricle
Ventriculus dexter
Anterior interventricular groove or furrow[2]
Sulcus longitudinalis anterior
1/1

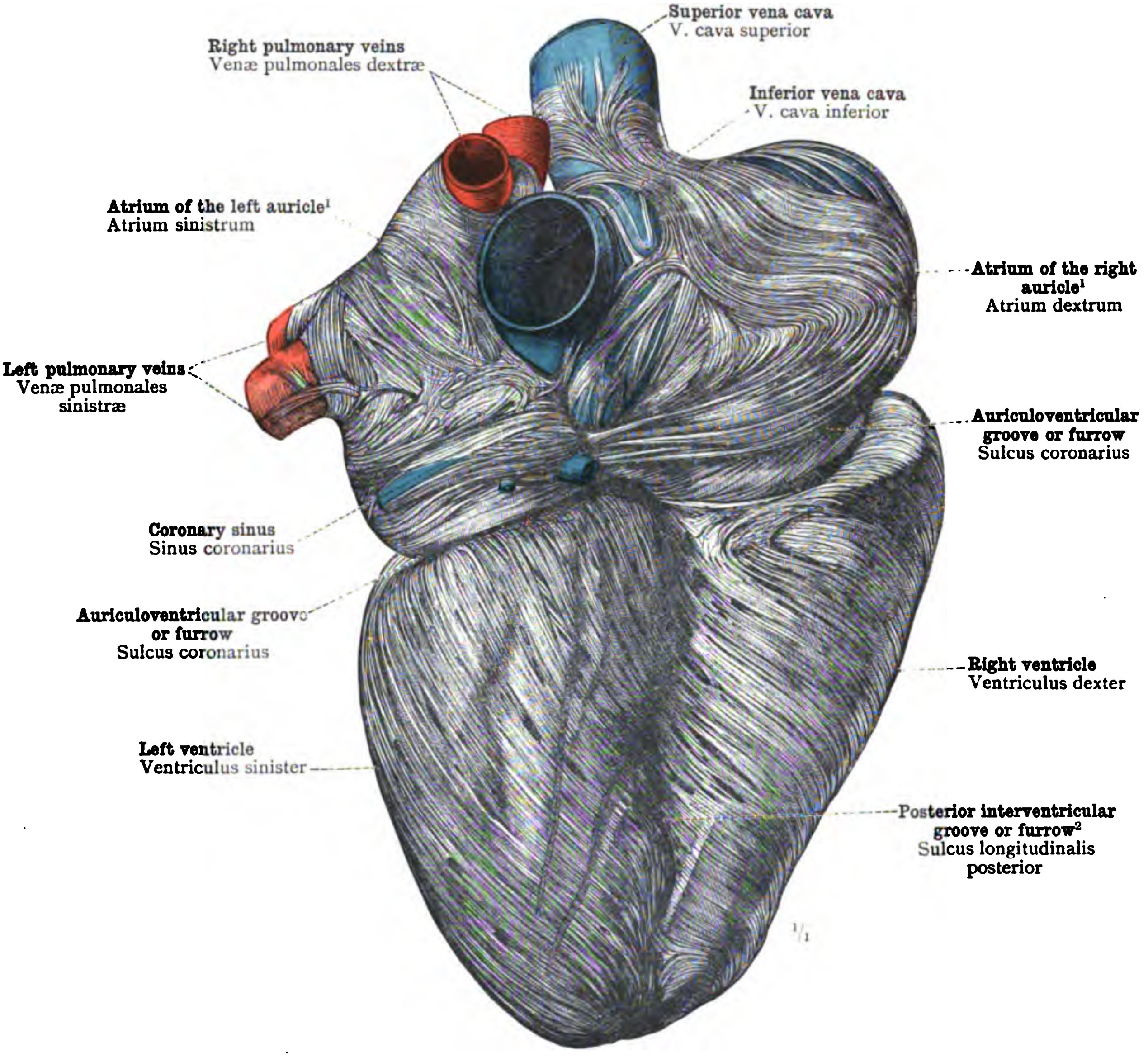
[1] See Appendix, note 113.

[2] See note 5 to p. 566.

FIG. 958.—SUPERFICIAL FIBRES OF THE MYOCARDIUM ON THE ANTERIOR SURFACE OF THE VENTRICLES AND AURICLES.

The heart was injected with tallow prior to dissection.

The Myocardium.



[1] See Appendix, note 113.

[2] See note 5 to p. 566.

FIG. 959.—SUPERFICIAL FIBRES OF THE MYOCARDIUM ON THE POSTERIOR SURFACE OF THE VENTRICLES AND AURICLES.

The preparation shown in Fig. 958, seen from behind.

The Myocardium.

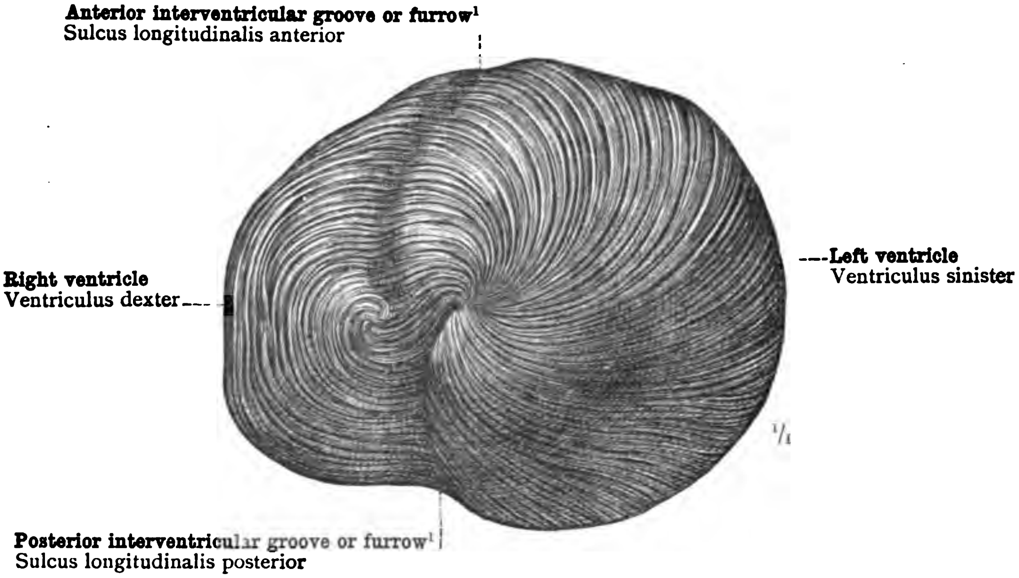

Anterior interventricular groove or furrow[1]
Sulcus longitudinalis anterior
Right ventricle
Ventriculus dexter
Left ventricle
Ventriculus sinister
1/1
Posterior interventricular groove or furrow[1]
Sulcus longitudinalis posterior

FIG. 960.—VORTEX OR WHORL OF THE HEART, VORTEX CORDIS, AT THE APEX OF THE *CONE OF THE HEART (*i.e.*, OF THE VENTRICULAR PORTION OF THE HEART—*see note* 12 *to p.* 563); SEEN FROM BELOW.

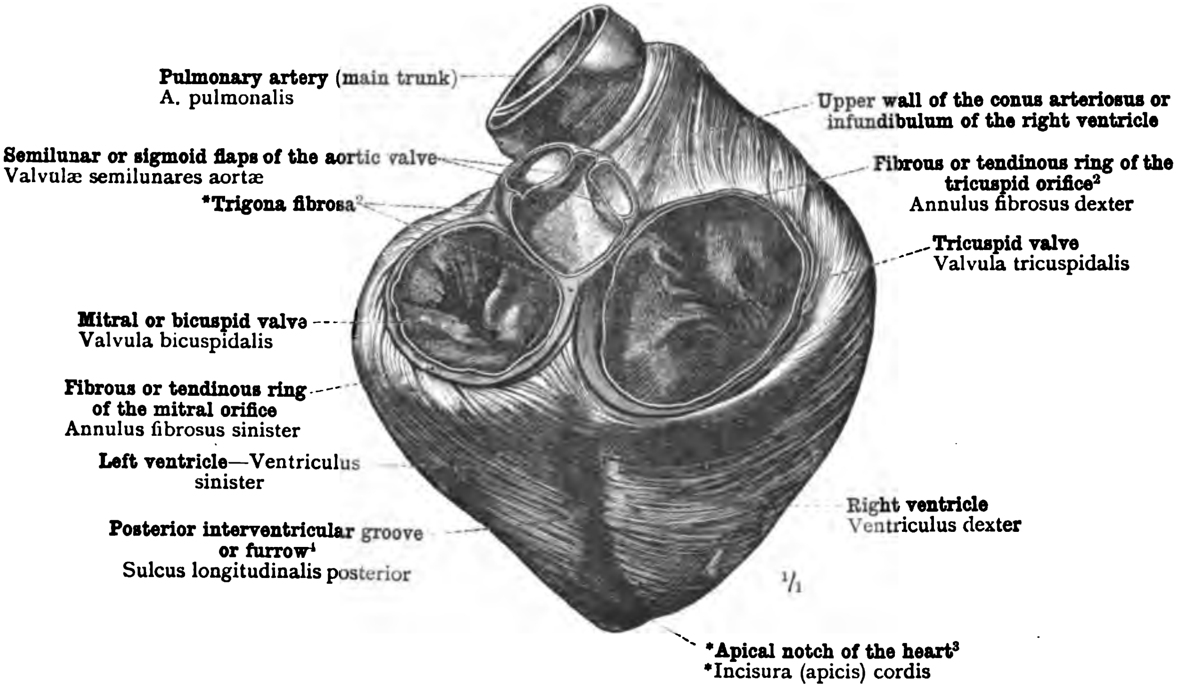

Pulmonary artery (main trunk)
A. pulmonalis
Upper wall of the conus arteriosus or infundibulum of the right ventricle
Semilunar or sigmoid flaps of the aortic valve
Valvulæ semilunares aortæ
Fibrous or tendinous ring of the tricuspid orifice[2]
Annulus fibrosus dexter
***Trigona fibrosa**[2]
Tricuspid valve
Valvula tricuspidalis
Mitral or bicuspid valve
Valvula bicuspidalis
Fibrous or tendinous ring of the mitral orifice
Annulus fibrosus sinister
Left ventricle—Ventriculus sinister
Right ventricle
Ventriculus dexter
Posterior interventricular groove or furrow[4]
Sulcus longitudinalis posterior
1/1
***Apical notch of the heart**[3]
*Incisura (apicis) cordis

FIG. 961.—THE *CONE OF THE HEART (*i.e.*, THE VENTRICULAR PORTION OF THE HEART—*see note* 12 *to p.* 563) SEEN FROM ABOVE AND BEHIND, WITH THE SUPERFICIAL FIBRES OF THE MYOCARDIUM LAID BARE; THE FIBROUS OR TENDINOUS RINGS OF THE AURICULOVENTRICULAR APERTURES, ANNULI FIBROSI, AND THE *TRIGONA FIBROSA.[2]

---

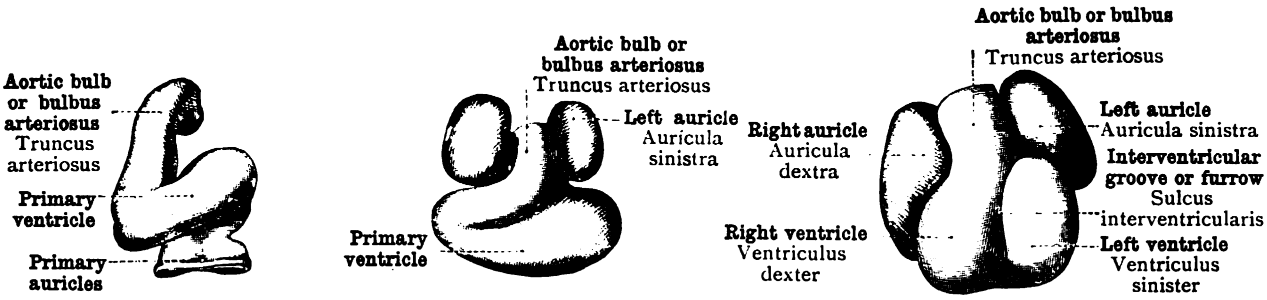
[1] See note 5 to p. 566.

[2] *Annuli Fibrosi and *Trigona Fibrosa.*—The *fibrous* or *tendinous rings* of the auriculoventricular apertures are by Macalister called *zonæ tendinosæ.* Connected with these are the **trigona fibrosa* (the term is not used by English anatomists). These are strong triangular masses of fibrocartilage. The *right *trigonum fibrosum*, situated in the angle between the aortic and the two auriculoventricular openings, corresponds to the *os cordis* of certain mammals, such as the ox. The *left *trigonum fibrosum* lies in front of the mitral orifice, in the angle between that orifice and the left side of the aortic orifice.—TR.

[3] See note 5 to p. 562.

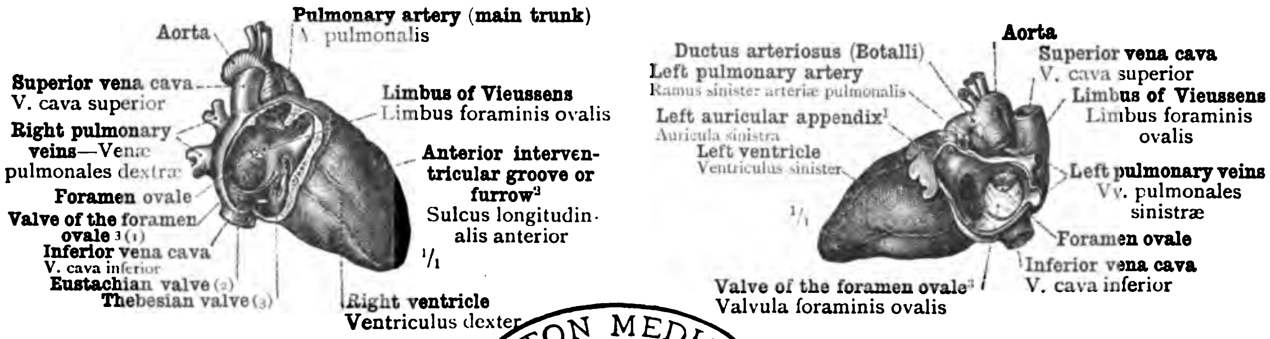
[4] See note 5 to p. 566.

Vortex cordis—Vortex or whorl of the heart.—Annuli fibrosi—Fibrous or tendinous rings of the auriculoventricular apertures.



THIRD WEEK. FOURTH WEEK. FIFTH WEEK.

FIG. 962.—STAGES IN THE DEVELOPMENT OF THE HUMAN HEART IN THE FIRST WEEKS OF INTRA-UTERINE LIFE. (ENLARGED. AFTER W. HIS.)



SEEN FROM THE RIGHT SIDE. SEEN FROM THE LEFT SIDE.

(1) Valvula foraminis ovalis (2) Valvula venæ cavæ (inferioris, Eustachii) (3) Valvula sinus coronarii (Thebesii)

FIG. 963.—FORAMEN OVALE SEPTI ATRIORUM, THE FORAMEN OVALE OF THE INTERAURICULAR SEPTUM, AS SEEN IN THE HEART OF A HUMAN FŒTUS AT THE END OF THE SIXTH MONTH (MONTHS OF FOUR WEEKS EACH) WHEN THE FREE (OUTER) WALLS OF BOTH AURICLES HAVE BEEN REMOVED.

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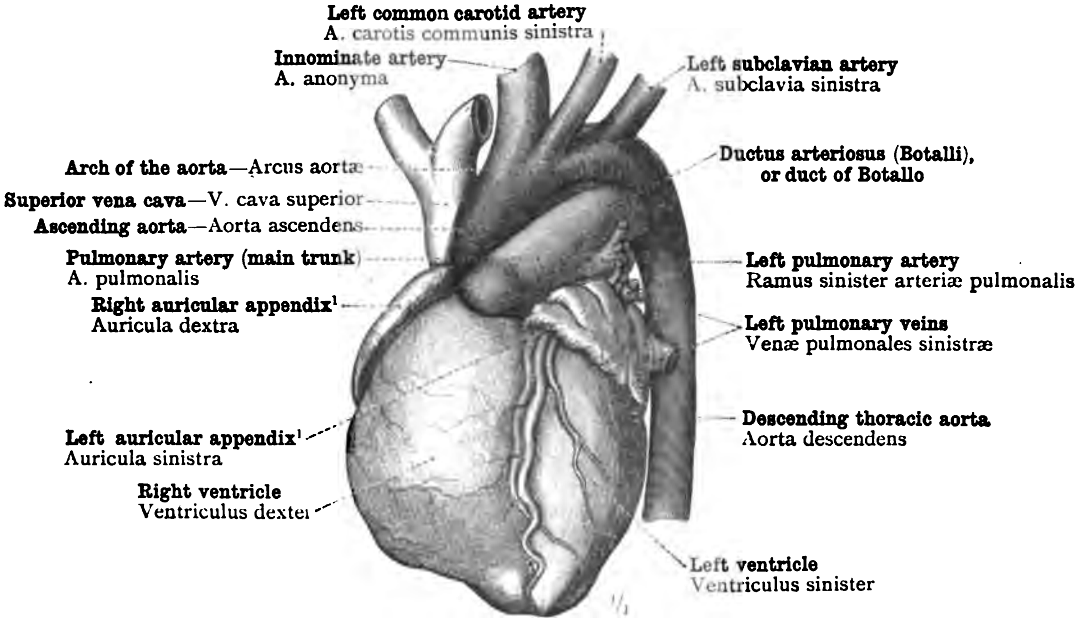

Left common carotid artery
A. carotis communis sinistra
Innominate artery
A. anonyma
Left subclavian artery
A. subclavia sinistra
Arch of the aorta—Arcus aortæ
Superior vena cava—V. cava superior
Ascending aorta—Aorta ascendens
Ductus arteriosus (Botalli), or duct of Botallo
Pulmonary artery (main trunk)
A. pulmonalis
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Right auricular appendix[1]
Auricula dextra
Left pulmonary veins
Venæ pulmonales sinistræ
Descending thoracic aorta
Aorta descendens
Left auricular appendix[1]
Auricula sinistra
Right ventricle
Ventriculus dexter
Left ventricle
Ventriculus sinister
1/1

FIG. 964.—THE HEART (INJECTED) OF AN INFANT BORN AT FULL TERM, SEEN FROM THE LEFT SIDE AND BEFORE. The ductus arteriosus or duct of Botallo is seen to be directly continuous with the main trunk of the pulmonary artery.

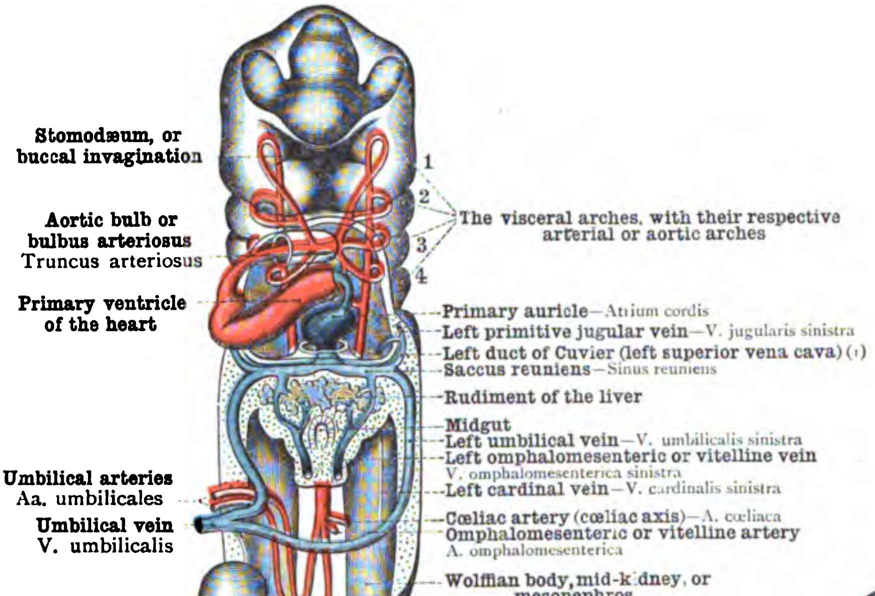
---

[1] See Appendix, note 113.

[2] See note 5 to p. 566.

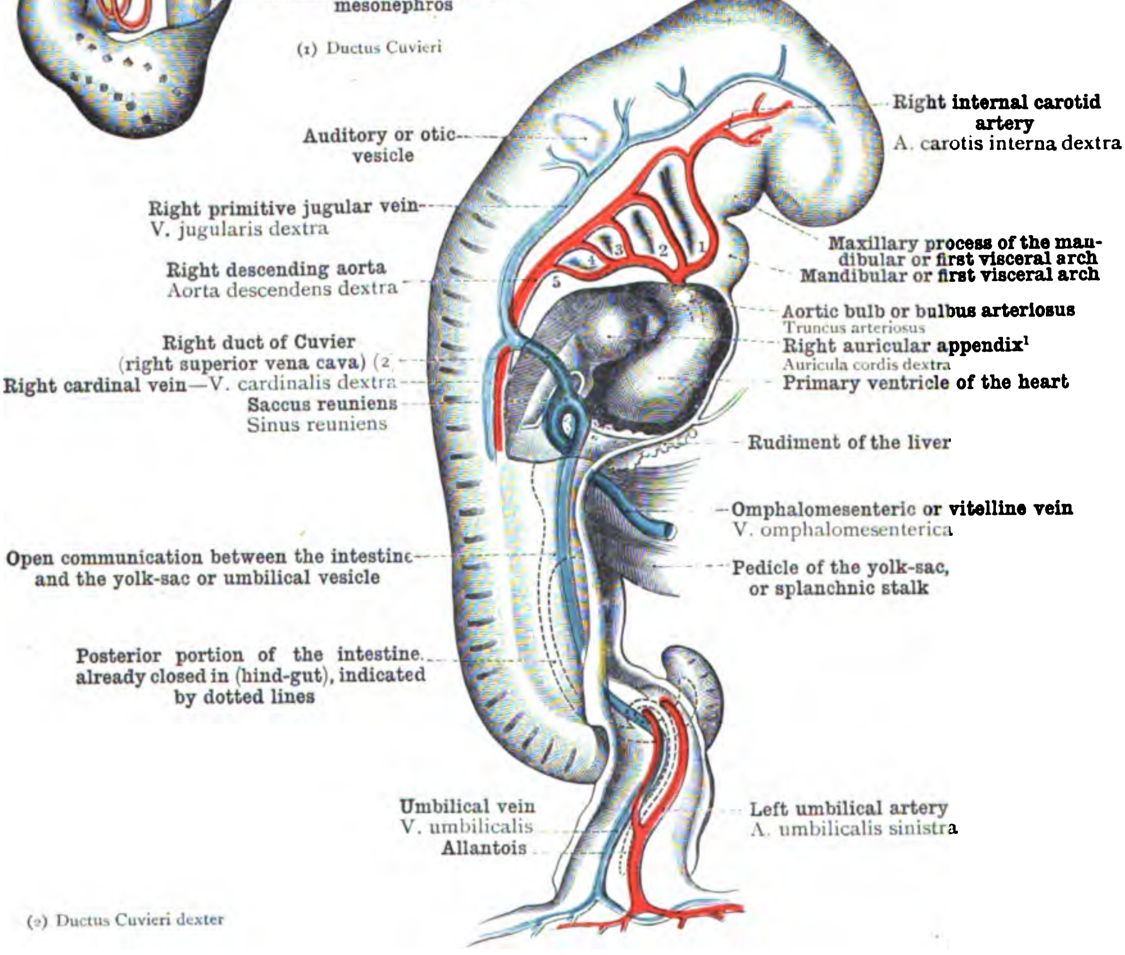
[3] Called by Macalister *valvula sinistra sacci venosi.*

Development of the Heart.


Stomodæum, or buccal invagination
Aortic bulb or bulbus arteriosus
Truncus arteriosus
Primary ventricle of the heart
Umbilical arteries
Aa. umbilicales
Umbilical vein
V. umbilicalis
1
2
3
4
The visceral arches, with their respective arterial or aortic arches
Primary auricle—Atrium cordis
Left primitive jugular vein—V. jugularis sinistra
Left duct of Cuvier (left superior vena cava) (1)
Saccus reuniens—Sinus reuniens
Rudiment of the liver
Midgut
Left umbilical vein—V. umbilicalis sinistra
Left omphalomesenteric or vitelline vein
V. omphalomesenterica sinistra
Left cardinal vein—V. cardinalis sinistra
Cœliac artery (cœliac axis)—A. cœliaca
Omphalomesenteric or vitelline artery
A. omphalomesenterica
Wolffian body, mid-kidney, or mesonephros

(1) Ductus Cuvieri

FIG. 965.—THE VASCULAR SYSTEM IN A HUMAN EMBRYO OF ABOUT EIGHTEEN TO TWENTY DAYS, HAVING A BODY-LENGTH OF $\frac{1}{10}$ INCH (2·6 MILLIMETRES), SEEN FROM BEFORE. (COMPILED FROM TWO DRAWINGS BY W. HIS.)


Auditory or otic vesicle
Right primitive jugular vein
V. jugularis dextra
Right descending aorta
Aorta descendens dextra
Right duct of Cuvier (right superior vena cava) (2)
Right cardinal vein—V. cardinalis dextra
Saccus reuniens
Sinus reuniens
Open communication between the intestine and the yolk-sac or umbilical vesicle
Posterior portion of the intestine already closed in (hind-gut), indicated by dotted lines
Umbilical vein
V. umbilicalis
Allantois
Right internal carotid artery
A. carotis interna dextra
Maxillary process of the mandibular or first visceral arch
Mandibular or first visceral arch
Aortic bulb or bulbus arteriosus
Truncus arteriosus
Right auricular appendix[1]
Auricula cordis dextra
Primary ventricle of the heart
Rudiment of the liver
Omphalomesenteric or vitelline vein
V. omphalomesenterica
Pedicle of the yolk-sac, or splanchnic stalk
Left umbilical artery
A. umbilicalis sinistra
1
2
3
4
5

(2) Ductus Cuvieri dexter

FIG. 966.—CONDITION OF THE HEART AND VASCULAR SYSTEM IN A HUMAN EMBRYO OF THE TWENTY-SECOND OR TWENTY-THIRD DAY, HAVING A BODY-LENGTH OF $\frac{1}{6}$ INCH (4·2 MILLIMETRES), SEEN FROM THE RIGHT SIDE. (AFTER W. HIS.)

The Vascular System at the End of the Third and in the Beginning of the Fourth Week of Intra-uterine Life.

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[1] See Appendix, note 113.

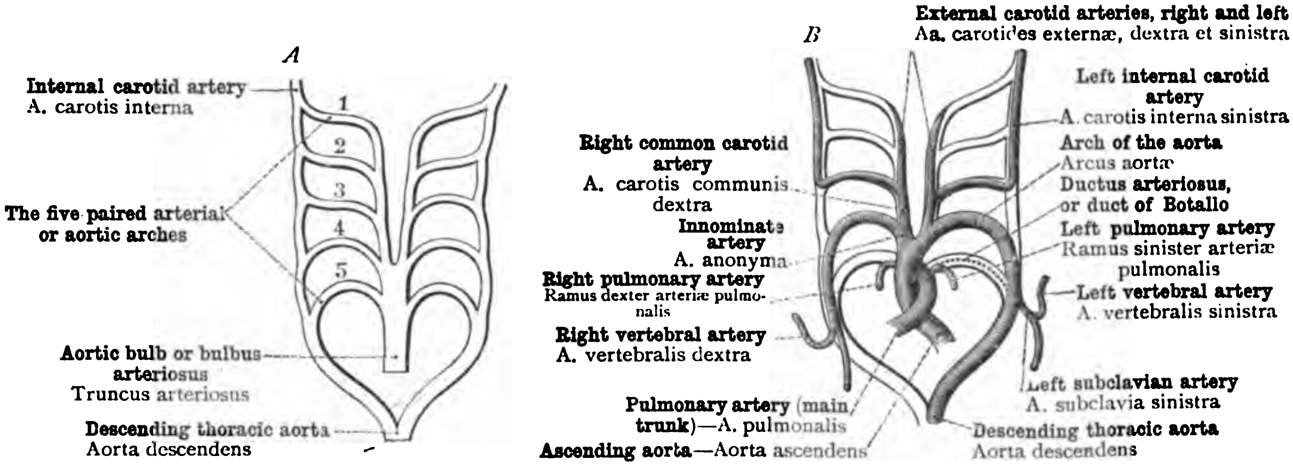
A
Internal carotid artery
A. carotis interna
1
2
3
4
5
The five paired arterial or aortic arches
Aortic bulb or bulbus arteriosus
Truncus arteriosus
Descending thoracic aorta
Aorta descendens
B
External carotid arteries, right and left
Aa. carotides externæ, dextra et sinistra
Left internal carotid artery
A. carotis interna sinistra
Arch of the aorta
Arcus aortæ
Ductus arteriosus, or duct of Botallo
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Left vertebral artery
A. vertebralis sinistra
Left subclavian artery
A. subclavia sinistra
Descending thoracic aorta
Aorta descendens
Right common carotid artery
A. carotis communis dextra
Innominate artery
A. anonyma
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Right vertebral artery
A. vertebralis dextra
Pulmonary artery (main trunk)—A. pulmonalis
Ascending aorta—Aorta ascendens

FIG. 967.—DIAGRAMMATIC REPRESENTATION OF THE TRANSFORMATION OF THE ARTERIAL OR AORTIC ARCHES. *A*. THEIR ORIGINAL ARRANGEMENT. *B*. THEIR SUBSEQUENT TRANSFORMATION INTO THE PERMANENT ARTERIAL TRUNKS. (AFTER RATHKE, WITH A SLIGHT MODIFICATION BY F. HOCHSTETTER.)

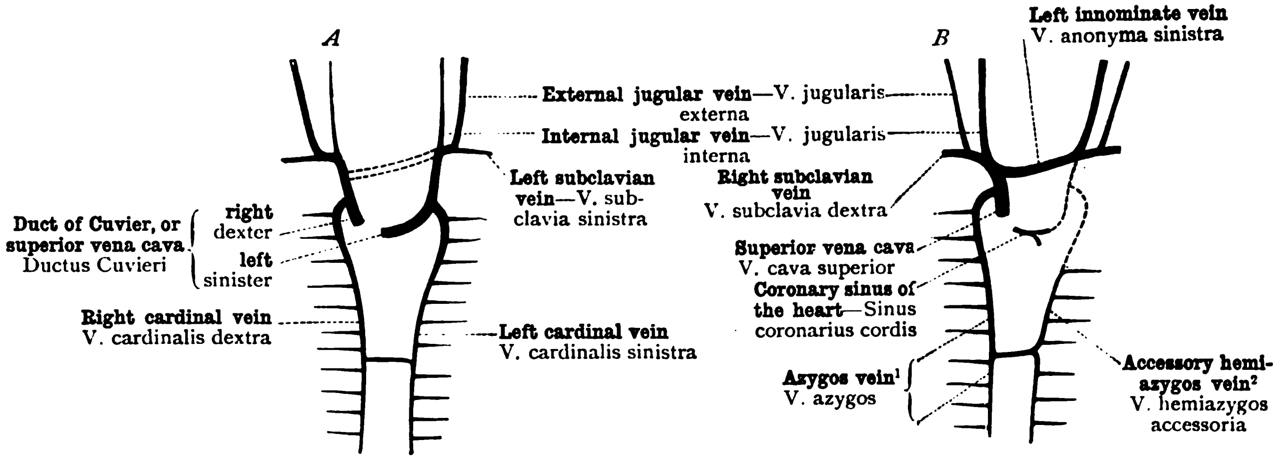

FIG. 968.—DIAGRAMMATIC REPRESENTATION OF THE RUDIMENTARY ARRANGEMENT OF THE SYSTEMIC SYSTEM OF VEINS (*A*), AND OF THE TRANSFORMATION OF THE SYSTEM OF THE SUPERIOR VENÆ CAVÆ (*B*). (AFTER RATHKE, WITH MODIFICATIONS BY F. HOCHSTETTER.)

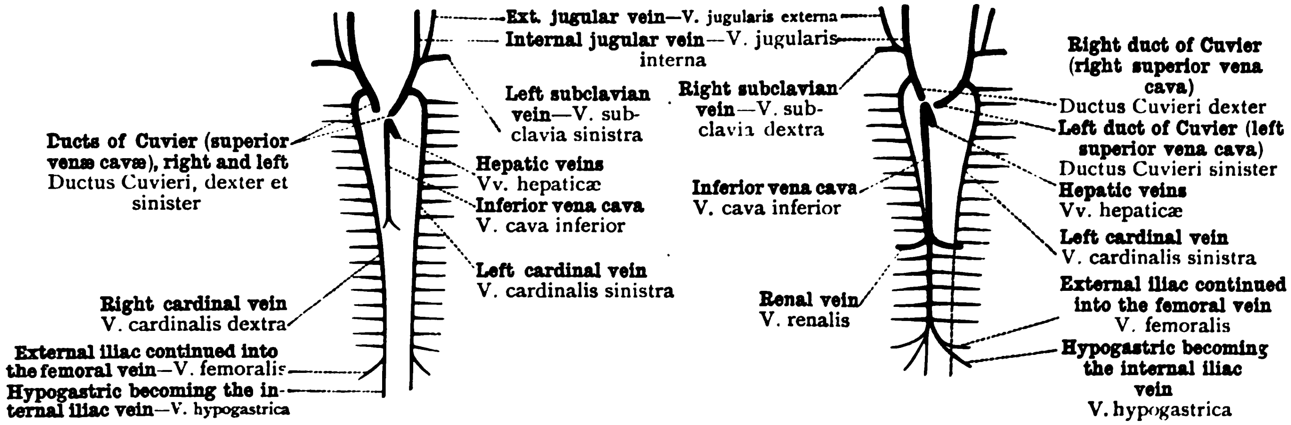
Ext. jugular vein—V. jugularis externa
Internal jugular vein—V. jugularis interna
Left subclavian vein—V. subclavia sinistra
Right subclavian vein—V. subclavia dextra
Ducts of Cuvier (superior venæ cavæ), right and left
Ductus Cuvieri, dexter et sinister
Hepatic veins
Vv. hepaticæ
Inferior vena cava
V. cava inferior
Left cardinal vein
V. cardinalis sinistra
Right cardinal vein
V. cardinalis dextra
External iliac continued into the femoral vein—V. femoralis
Hypogastric becoming the internal iliac vein—V. hypogastrica
Right duct of Cuvier (right superior vena cava)
Ductus Cuvieri dexter
Left duct of Cuvier (left superior vena cava)
Ductus Cuvieri sinister
Hepatic veins
Vv. hepaticæ
Inferior vena cava
V. cava inferior
Left cardinal vein
V. cardinalis sinistra
Renal vein
V. renalis
External iliac continued into the femoral vein
V. femoralis
Hypogastric becoming the internal iliac vein
V. hypogastrica

FIG. 969.—DIAGRAMMATIC REPRESENTATION OF THE DEVELOPMENT OF THE INFERIOR VENA CAVA. (AFTER RATHKE, IMPROVED BY F. HOCHSTETTER.)

---

[1] Called also the *right* or *large azygos vein*.

[2] Called also the *left upper azygos vein*.

The Rudimentary Condition of the Arterial and Venous Systems, and the Transformations by which the Normal Adult Condition of these Systems is attained.

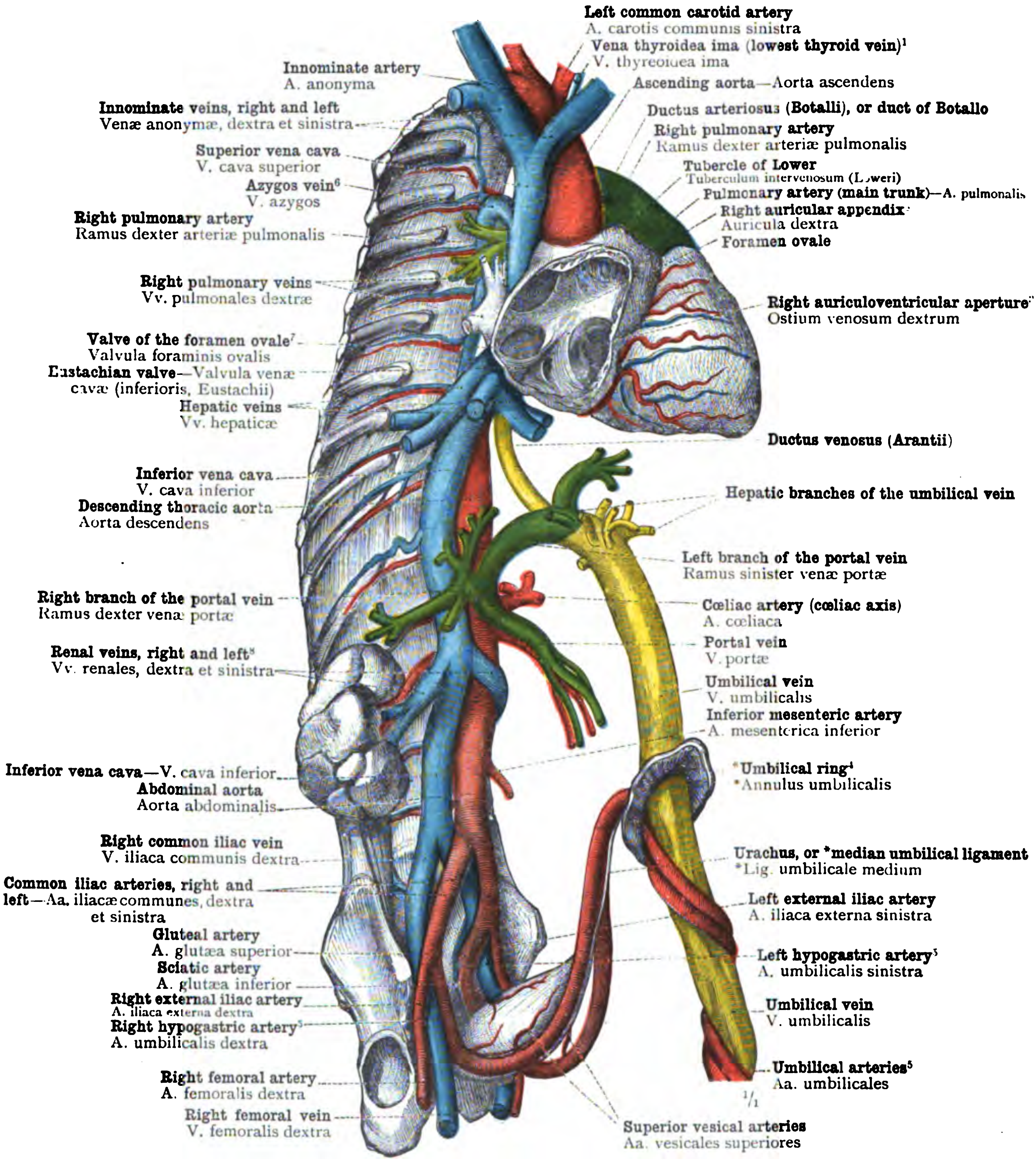
Left common carotid artery
A. carotis communis sinistra
Vena thyroidea ima (lowest thyroid vein)[1]
V. thyreoidea ima
Ascending aorta—Aorta ascendens
Ductus arteriosus (Botalli), or duct of Botallo
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Tubercle of Lower
Tuberculum intervenosum (Loweri)
Pulmonary artery (main trunk)—A. pulmonalis
Right auricular appendix
Auricula dextra
Foramen ovale
Right auriculoventricular aperture[3]
Ostium venosum dextrum
Ductus venosus (Arantii)
Hepatic branches of the umbilical vein
Left branch of the portal vein
Ramus sinister venæ portæ
Cœliac artery (cœliac axis)
A. cœliaca
Portal vein
V. portæ
Umbilical vein
V. umbilicalis
Inferior mesenteric artery
A. mesenterica inferior
*Umbilical ring[4]
*Annulus umbilicalis
Urachus, or *median umbilical ligament
*Lig. umbilicale medium
Left external iliac artery
A. iliaca externa sinistra
Left hypogastric artery[5]
A. umbilicalis sinistra
Umbilical vein
V. umbilicalis
Umbilical arteries[5]
Aa. umbilicales
1/1
Superior vesical arteries
Aa. vesicales superiores
Innominate artery
A. anonyma
Innominate veins, right and left
Venæ anonymæ, dextra et sinistra
Superior vena cava
V. cava superior
Azygos vein[6]
V. azygos
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Right pulmonary veins
Vv. pulmonales dextræ
Valve of the foramen ovale[7]
Valvula foraminis ovalis
Eustachian valve—Valvula venæ cavæ (inferioris, Eustachii)
Hepatic veins
Vv. hepaticæ
Inferior vena cava
V. cava inferior
Descending thoracic aorta
Aorta descendens
Right branch of the portal vein
Ramus dexter venæ portæ
Renal veins, right and left[8]
Vv. renales, dextra et sinistra
Inferior vena cava—V. cava inferior
Abdominal aorta
Aorta abdominalis
Right common iliac vein
V. iliaca communis dextra
Common iliac arteries, right and left—Aa. iliacæ communes, dextra et sinistra
Gluteal artery
A. glutæa superior
Sciatic artery
A. glutæa inferior
Right external iliac artery
A. iliaca externa dextra
Right hypogastric artery[5]
A. umbilicalis dextra
Right femoral artery
A. femoralis dextra
Right femoral vein
V. femoralis dextra

FIG. 970.—THE CIRCULATORY APPARATUS OF THE FŒTUS, AS SEEN IN AN INFANT STILL-BORN AT FULL TERM. VIEWED FROM THE RIGHT SIDE.

The right wall of the right auricle has been removed, to show the foramen ovale and its valve, and also the Eustachian valve. The umbilical vein with its hepatic branches and the ductus venosus (Arantii) are coloured yellow; the portal vein, the pulmonary arteries, and the ductus arteriosus (Botalli), are coloured green.

The Fœtal Circulatory Apparatus.

---

[1] Companion to the *thyroidea ima artery*—see note [1] to p. 590.—TR.

[2] See Appendix, note [113].

[3] Or *tricuspid orifice*.

[4] See Appendix, note [119].

[5] See Appendix, note [120].

[6] Called also the *right* or *large azygos vein*.

[7] Called by Macalister *valvula sinistra sacci venosi*.

[8] Sometimes called the *emulgent* veins. See note 3 to p. 595.—TR.

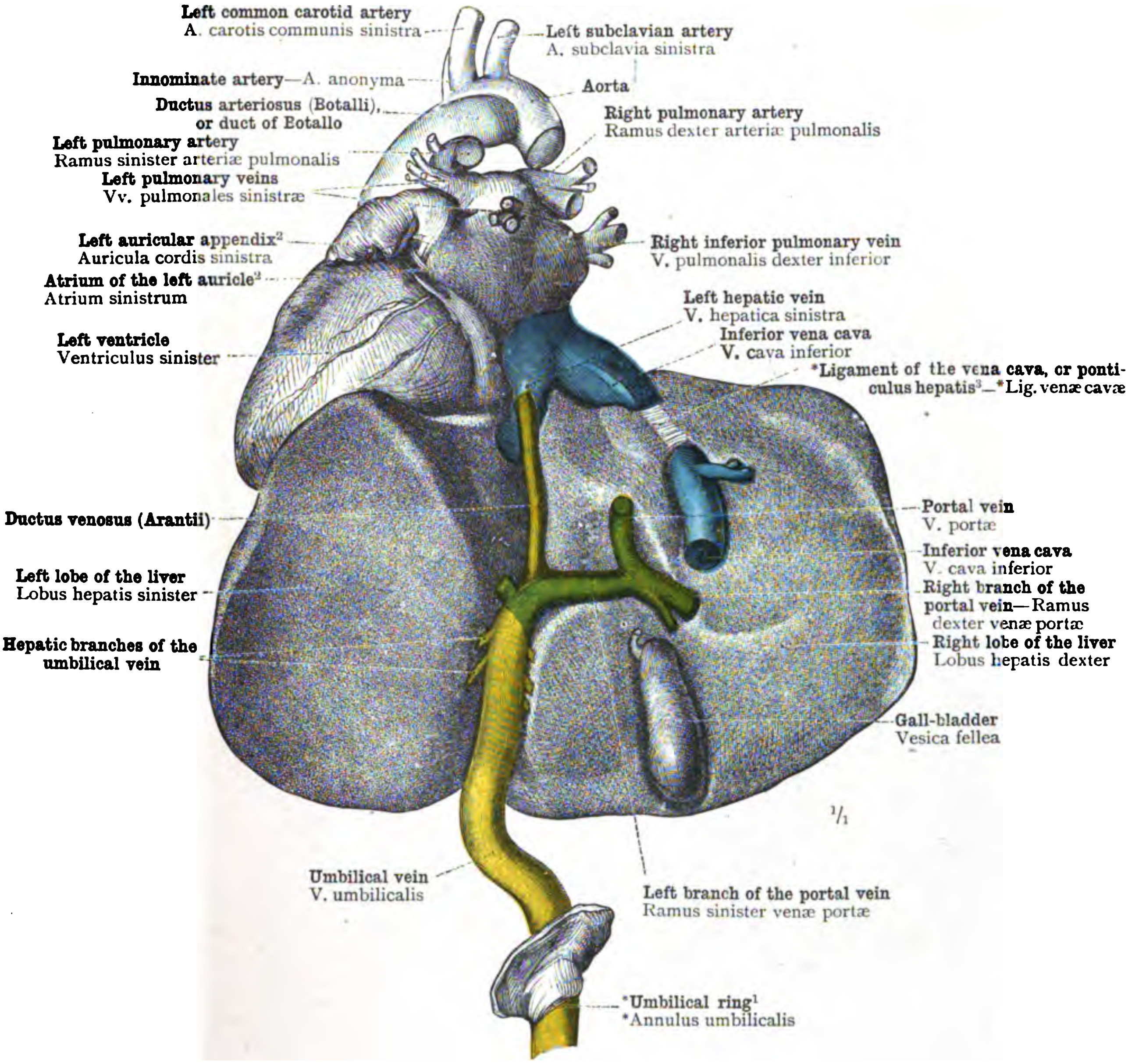
Left common carotid artery
A. carotis communis sinistra
Left subclavian artery
A. subclavia sinistra
Innominate artery—A. anonyma
Aorta
Ductus arteriosus (Botalli), **or duct of Botallo**
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Left pulmonary veins
Vv. pulmonales sinistræ
Left auricular appendix²
Auricula cordis sinistra
Right inferior pulmonary vein
V. pulmonalis dexter inferior
Atrium of the left auricle²
Atrium sinistrum
Left hepatic vein
V. hepatica sinistra
Left ventricle
Ventriculus sinister
Inferior vena cava
V. cava inferior
*__Ligament of the vena cava, or ponticulus hepatis__³—*Lig. venæ cavæ
Ductus venosus (Arantii)
Portal vein
V. portæ
Inferior vena cava
V. cava inferior
Left lobe of the liver
Lobus hepatis sinister
Right branch of the portal vein—Ramus dexter venæ portæ
Hepatic branches of the umbilical vein
Right lobe of the liver
Lobus hepatis dexter
Gall-bladder
Vesica fellea
¹/₁
Umbilical vein
V. umbilicalis
Left branch of the portal vein
Ramus sinister venæ portæ
***Umbilical ring**¹
*Annulus umbilicalis

FIG. 971.—THE LIVER AND THE HEART OF AN INFANT STILL-BORN AT FULL TERM. THE UMBILICAL VEIN, VENA UMBILICALIS, FROM THE *UMBILICAL RING (*see Appendix, note* ¹¹⁹) TO ITS TERMINATION IN THE LEFT BRANCH OF THE PORTAL VEIN, AND THE HEPATIC BRANCHES GIVEN OFF FROM THE UMBILICAL VEIN IN THE UMBILICAL FISSURE OF THE LIVER; THE DIVISION OF THE PORTAL VEIN, VENA PORTÆ, INTO ITS RIGHT AND LEFT BRANCHES; THE ORIGIN OF THE DUCTUS VENOSUS (ARANTII) IN THE LEFT BRANCH OF THE PORTAL VEIN, AND ITS TERMINATION IN THE LEFT HEPATIC VEIN.

The liver is represented as seen from below; the heart, as seen from behind. The short remaining portion of the trunk of the portal vein has been turned upwards.

The Fœtal Circulation in Relation to the Liver.

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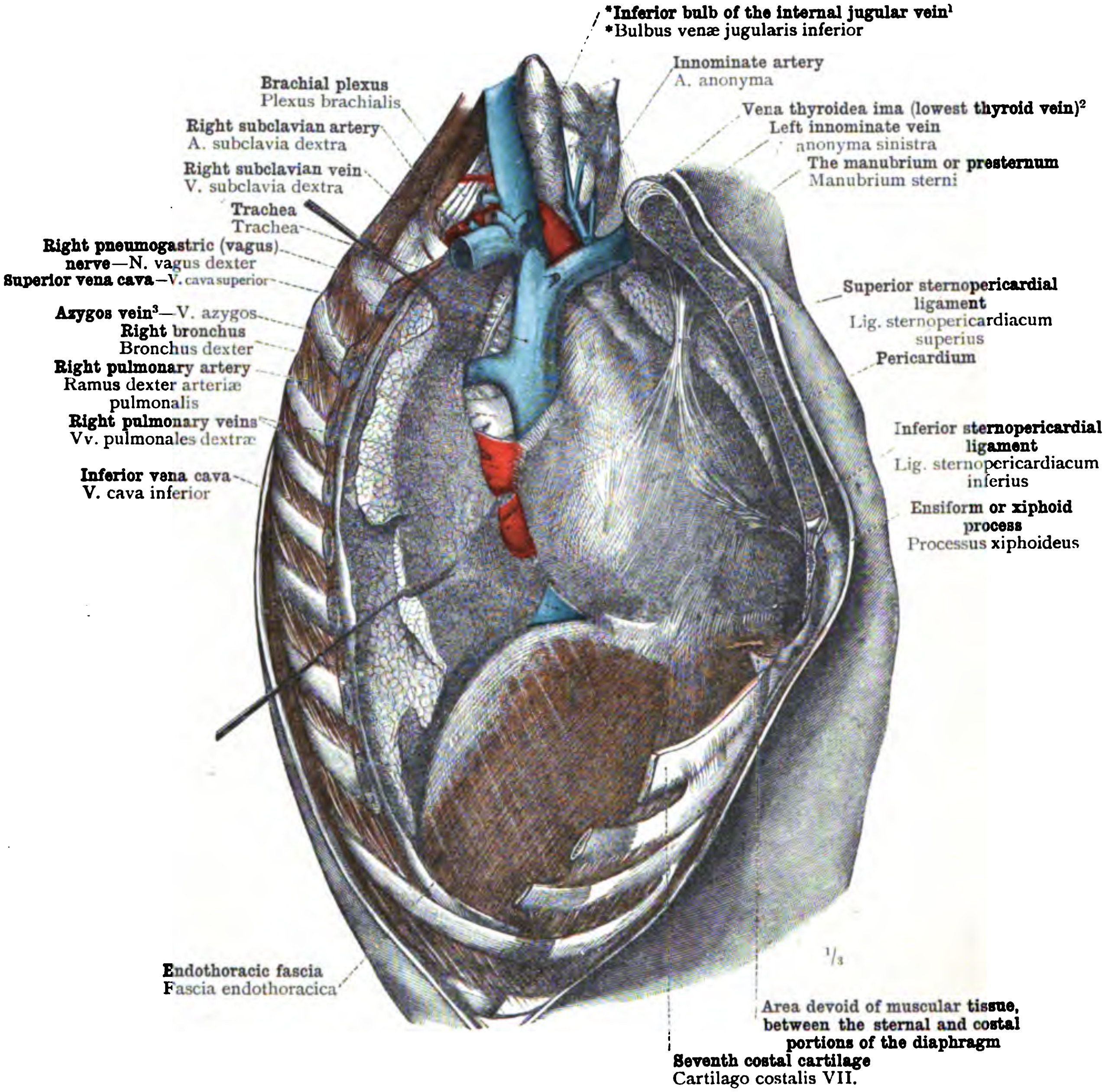
[1] See Appendix note 119.

[2] See Appendix, note 113.

[3] See Appendix, to Part IV., note 17.


*Inferior bulb of the internal jugular vein[1]
*Bulbus venæ jugularis inferior
Innominate artery
A. anonyma
Vena thyroidea ima (lowest thyroid vein)[2]
Left innominate vein
anonyma sinistra
The manubrium or presternum
Manubrium sterni
Brachial plexus
Plexus brachialis
Right subclavian artery
A. subclavia dextra
Right subclavian vein
V. subclavia dextra
Trachea
Trachea
Right pneumogastric (vagus) nerve—N. vagus dexter
Superior vena cava—V. cava superior
Azygos vein[3]—V. azygos
Right bronchus
Bronchus dexter
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Right pulmonary veins
Vv. pulmonales dextræ
Inferior vena cava
V. cava inferior
Superior sternopericardial ligament
Lig. sternopericardiacum superius
Pericardium
Inferior sternopericardial ligament
Lig. sternopericardiacum inferius
Ensiform or xiphoid process
Processus xiphoideus
1/3
Endothoracic fascia
Fascia endothoracica
Area devoid of muscular tissue, between the sternal and costal portions of the diaphragm
Seventh costal cartilage
Cartilago costalis VII.

---

[1] See Appendix, note 121.

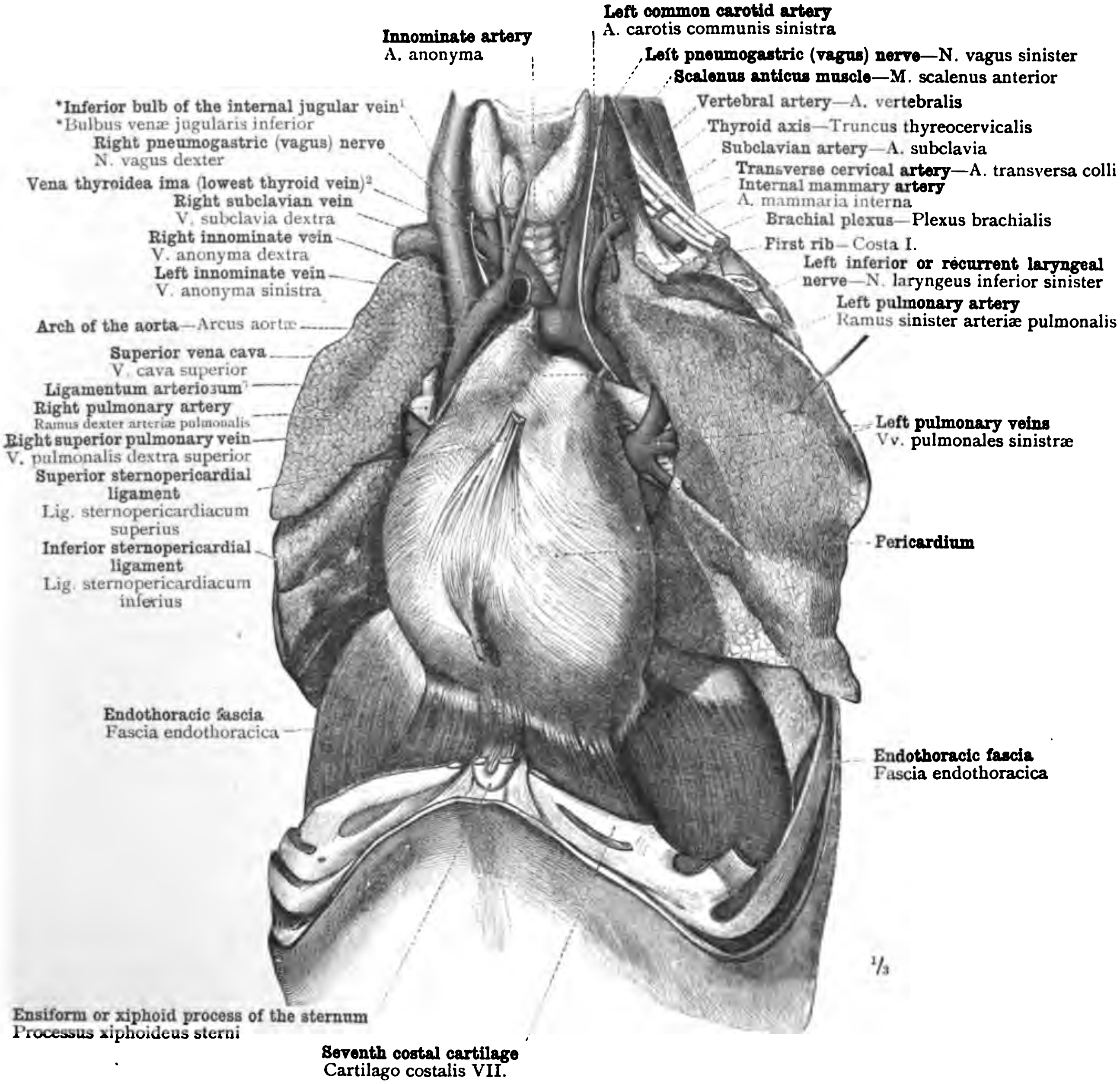
[2] Companion to the *thyroidea ima artery*—see note [1] to p. 590.—Tr.

[3] Called also the *right* or *large azygos vein*.

FIG. 972.—POSITION AND RELATIONS OF THE PERICARDIUM; ITS CONNEXIONS WITH THE ENDOTHORACIC FASCIA AND WITH THE DIAPHRAGM. PROLONGATION OF THE FIBROUS LAYER OF THE PERICARDIUM TO FORM TUBULAR INVESTMENTS FOR THE AORTA, THE SUPERIOR VENA CAVA, AND THE RIGHT PULMONARY VEINS. THE SUPERIOR AND INFERIOR STERNOPERICARDIAL LIGAMENTS. SEEN FROM THE RIGHT SIDE AND BEFORE.

The sternum having been divided sagittally in the median plane, its left half was drawn a little forwards; the right wall of the thorax was removed as far down as the tenth rib: and the right lung was drawn backwards as far as possible, in order to display the vessels forming its root.

The Pericardium.—The Sternopericardial Ligaments.


Innominate artery
A. anonyma
Left common carotid artery
A. carotis communis sinistra
Left pneumogastric (vagus) nerve—N. vagus sinister
Scalenus anticus muscle—M. scalenus anterior
Vertebral artery—A. vertebralis
Thyroid axis—Truncus thyreocervicalis
Subclavian artery—A. subclavia
Transverse cervical artery—A. transversa colli
Internal mammary artery
A. mammaria interna
Brachial plexus—Plexus brachialis
First rib—Costa I.
Left inferior or recurrent laryngeal nerve—N. laryngeus inferior sinister
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
*Inferior bulb of the internal jugular vein[1]
*Bulbus venæ jugularis inferior
Right pneumogastric (vagus) nerve
N. vagus dexter
Vena thyroidea ima (lowest thyroid vein)[2]
Right subclavian vein
V. subclavia dextra
Right innominate vein
V. anonyma dextra
Left innominate vein
V. anonyma sinistra
Arch of the aorta—Arcus aortæ
Superior vena cava
V. cava superior
Ligamentum arteriosum[3]
Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Right superior pulmonary vein
V. pulmonalis dextra superior
Superior sternopericardial ligament
Lig. sternopericardiacum superius
Inferior sternopericardial ligament
Lig. sternopericardiacum inferius
Left pulmonary veins
Vv. pulmonales sinistræ
Pericardium
Endothoracic fascia
Fascia endothoracica
Endothoracic fascia
Fascia endothoracica
1/3
Ensiform or xiphoid process of the sternum
Processus xiphoideus sterni
Seventh costal cartilage
Cartilago costalis VII.

---

[1] See Appendix, note 121.

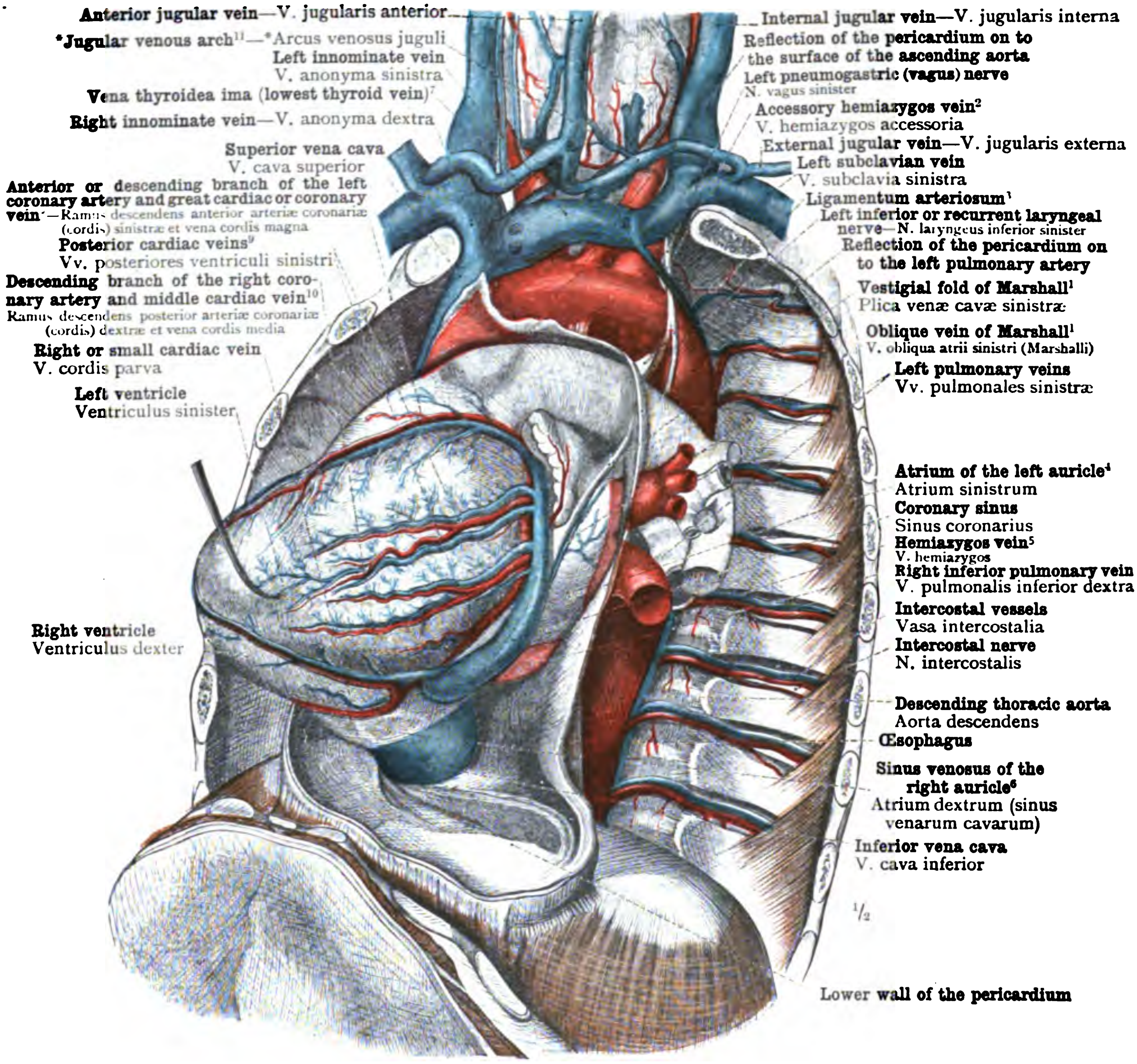
[2] Companion to the *thyroidea ima artery*—see note 1 to p. 590.—Tr.

[3] See Appendix, note 111.

FIG. 973.—POSITION AND RELATIONS OF THE PERICARDIUM; ITS CONNEXIONS WITH THE ENDOTHORACIC FASCIA AND WITH THE DIAPHRAGM; PROLONGATION OF ITS FIBROUS LAYER TO FORM TUBULAR INVESTMENTS FOR THE ARCH OF THE AORTA, THE LEFT PULMONARY ARTERY, AND THE LEFT PULMONARY VEINS. ON THE ANTERIOR WALL OF THE PERICARDIUM, THE REMAINS OF THE STERNOPERICARDIAL LIGAMENTS, WHICH HAVE BEEN DIVIDED, ARE VISIBLE. SEEN FROM THE LEFT SIDE AND BEFORE.

In the preparation shown in Fig. 972, the left wall of the thorax was removed to the same extent as the right wall had already been cut away, and both lungs were drawn backwards as far as possible, in order to display the vessels of the roots of the lungs.

The Pericardium.—The Sternopericardial Ligaments.


Anterior jugular vein—V. jugularis anterior
*Jugular venous arch[11]—*Arcus venosus juguli
Left innominate vein
V. anonyma sinistra
Vena thyroidea ima (lowest thyroid vein)[7]
Right innominate vein—V. anonyma dextra
Superior vena cava
V. cava superior
Anterior or descending branch of the left coronary artery and great cardiac or coronary vein[8]—Ramus descendens anterior arteriæ coronariæ (cordis) sinistræ et vena cordis magna
Posterior cardiac veins[9]
Vv. posteriores ventriculi sinistri
Descending branch of the right coronary artery and middle cardiac vein[10]
Ramus descendens posterior arteriæ coronariæ (cordis) dextræ et vena cordis media
Right or small cardiac vein
V. cordis parva
Left ventricle
Ventriculus sinister
Right ventricle
Ventriculus dexter
Internal jugular vein—V. jugularis interna
Reflection of the pericardium on to the surface of the ascending aorta
Left pneumogastric (vagus) nerve
N. vagus sinister
Accessory hemiazygos vein[2]
V. hemiazygos accessoria
External jugular vein—V. jugularis externa
Left subclavian vein
V. subclavia sinistra
Ligamentum arteriosum[3]
Left inferior or recurrent laryngeal nerve—N. laryngeus inferior sinister
Reflection of the pericardium on to the left pulmonary artery
Vestigial fold of Marshall[1]
Plica venæ cavæ sinistræ
Oblique vein of Marshall[1]
V. obliqua atrii sinistri (Marshalli)
Left pulmonary veins
Vv. pulmonales sinistræ
Atrium of the left auricle[4]
Atrium sinistrum
Coronary sinus
Sinus coronarius
Hemiazygos vein[5]
V. hemiazygos
Right inferior pulmonary vein
V. pulmonalis inferior dextra
Intercostal vessels
Vasa intercostalia
Intercostal nerve
N. intercostalis
Descending thoracic aorta
Aorta descendens
Œsophagus
Sinus venosus of the right auricle[6]
Atrium dextrum (sinus venarum cavarum)
Inferior vena cava
V. cava inferior
1/2
Lower wall of the pericardium

---

[1] See Appendix, note 122.

[2] Called also the *left upper azygos vein*.

[3] See Appendix, note 111.

[4] See Appendix, note 113.

[5] Known also as the *left lower* or *small azygos vein*.

[6] See Appendix, note 115.

[7] Companion to the *thyroidea ima artery*—see note [1] to p. 590.—Tr.

[8] Called by Macalister the *anterior interventricular artery* and *vein*.

[9] Called by Macalister the *left marginal veins*.

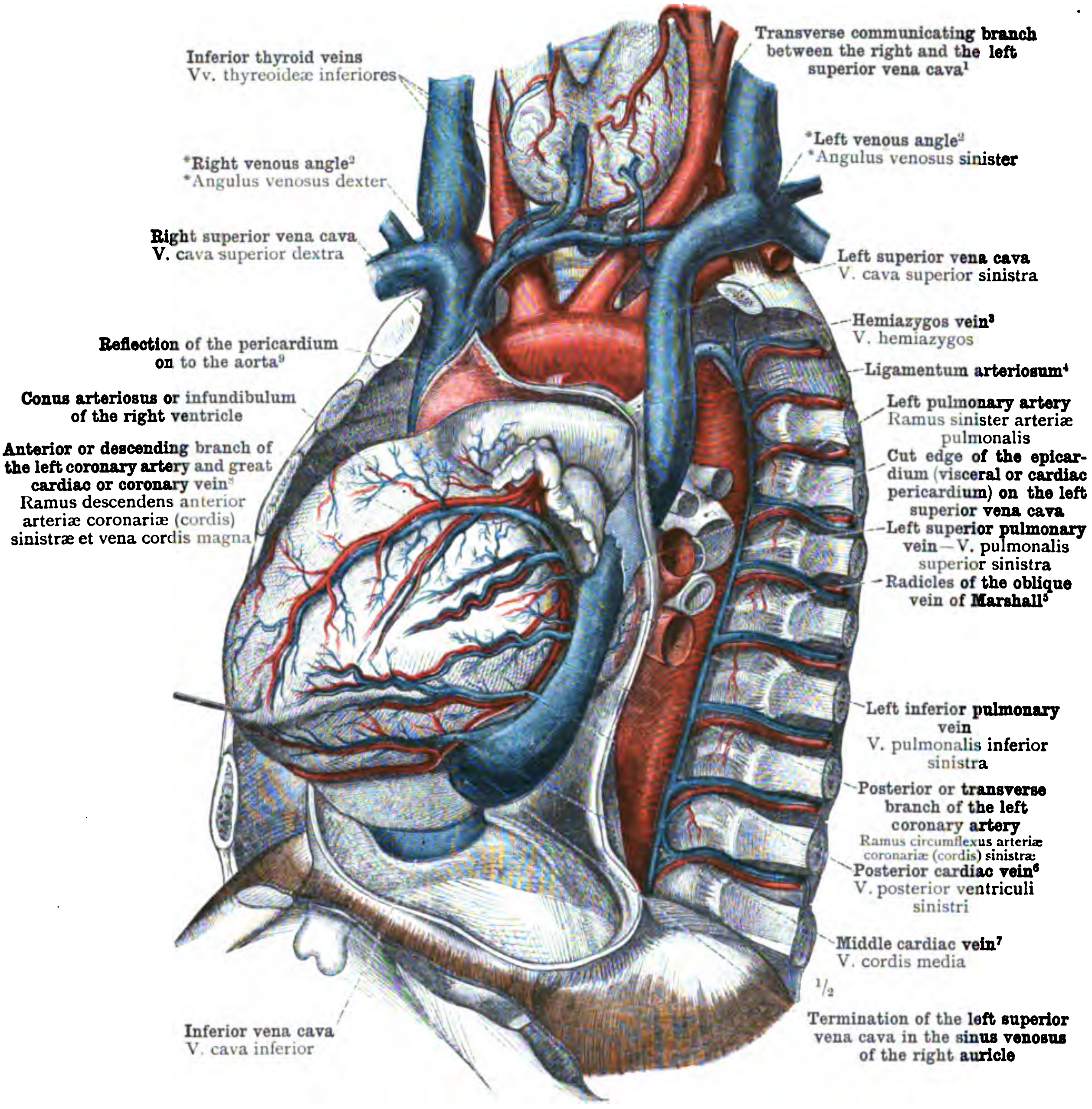
[10] Called by Macalister the *posterior interventricular artery* and *vein*.

[11] See Appendix, note 123.

Fig. 974.—The Vestigial Fold (Plica Venæ Cavæ Sinistræ—*see Appendix, note* 122), and its Relation to the Oblique Vein of Marshall (Vena Obliqua Atrii Sinistri Marshalli—*see Appendix, note* 115). Seen from Before, Below, and the Left Side.

The sternum having been removed and the greater part of the left lateral wall of the thorax having been cut away, the front and the left side of the pericardium were removed by incisions passing along the attachments of the membrane to the great vessels and to the diaphragm. The heart was drawn upwards and to the right, in order to display its posterior surface (facies diaphragmatica). The coronary vessels were dissected out by partial removal of the epicardium (visceral or cardiac pericardium).

Pericardium, Epicardium, Vestigial Fold, Cardiac Veins.


Inferior thyroid veins
Vv. thyreoideæ inferiores
*Right venous angle[2]
*Angulus venosus dexter
Right superior vena cava
V. cava superior dextra
Reflection of the pericardium on to the aorta[9]
Conus arteriosus or infundibulum of the right ventricle
Anterior or descending branch of the left coronary artery and great cardiac or coronary vein[8]
Ramus descendens anterior arteriæ coronariæ (cordis) sinistræ et vena cordis magna
Inferior vena cava
V. cava inferior
Transverse communicating branch between the right and the left superior vena cava[1]
*Left venous angle[2]
*Angulus venosus sinister
Left superior vena cava
V. cava superior sinistra
Hemiazygos vein[3]
V. hemiazygos
Ligamentum arteriosum[4]
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Cut edge of the epicardium (visceral or cardiac pericardium) on the left superior vena cava
Left superior pulmonary vein—V. pulmonalis superior sinistra
Radicles of the oblique vein of Marshall[5]
Left inferior pulmonary vein
V. pulmonalis inferior sinistra
Posterior or transverse branch of the left coronary artery
Ramus circumflexus arteriæ coronariæ (cordis) sinistræ
Posterior cardiac vein[6]
V. posterior ventriculi sinistri
Middle cardiac vein[7]
V. cordis media
1/2
Termination of the left superior vena cava in the sinus venosus of the right auricle

---

[1] See Appendix, note 124.

[2] See Appendix, note 125.

[3] This represents the combined *upper* and *lower left azygos veins* of the normal body.—Tr.

[4] See Appendix, note 111.

[5] *Vena Obliqua Atrii Sinistri* (*Marshalli*). See Appendix, note 117.

[6] Called by Macalister the *left marginal vein*.

[7] Called by Macalister the *posterior interventricular vein*.

[8] Called by Macalister the *anterior interventricular artery and vein*.

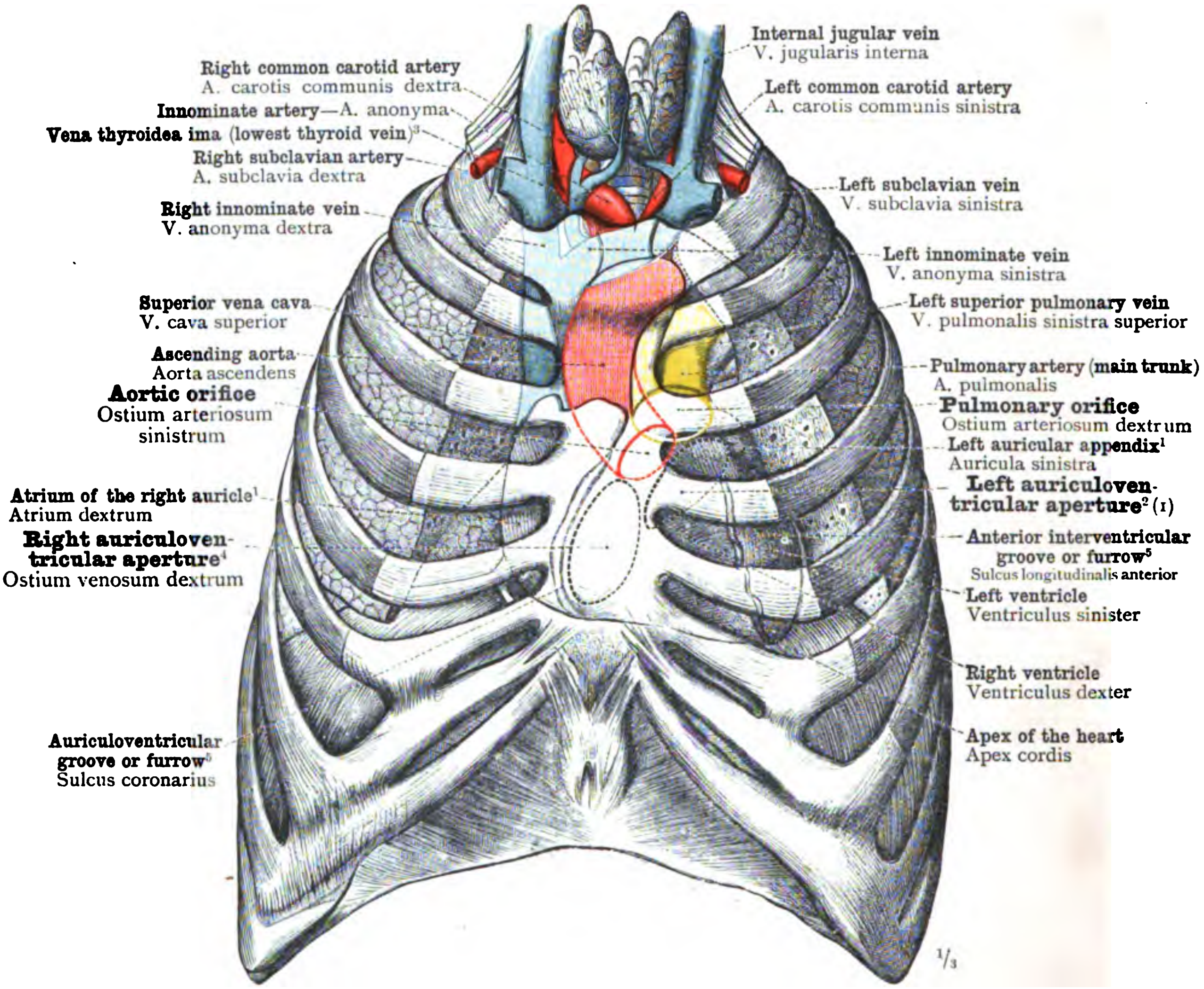
[9] Or junction of the *parietal* and *visceral* pericardium. (See also note [2] to p. 565.)—Tr.

FIG. 975.—PERSISTENT LEFT SUPERIOR VENA CAVA (VENA CAVA SUPERIOR SINISTRA), AND ITS RELATIONS TO THE CARDIAC VEINS. SEEN FROM BEFORE, BELOW, AND THE LEFT SIDE.

The hemiazygos vein (*see note 3 above*) opens from behind into the left superior vena cava at the level of the body of the fourth dorsal vertebra. The comparatively slender transverse communicating branch between the right and the left superior vena cava, from which, after the obliteration of the proximal portion of the left superior vena cava, the transverse portion of the left innominate should in the natural course of development have been formed, receives, in addition to others, the inferior thyroid veins.

The thoracic cavity and the pericardium have been opened, and the heart has been drawn upwards and to the right, as in the preparation shown in Fig. 974. By the partial removal of the epicardium (visceral or cardiac pericardium), the left superior vena cava was laid bare in its course along the back of the left auricle and in the auriculo-ventricular groove, up to its termination in the sinus venosus of the right auricle; and its tributary veins and the branches of the coronary arteries were also dissected out.

Persistent Left Superior Vena Cava.


Right common carotid artery
A. carotis communis dextra
Innominate artery—A. anonyma
Vena thyroidea ima (lowest thyroid vein)[3]
Right subclavian artery
A. subclavia dextra
Right innominate vein
V. anonyma dextra
Superior vena cava
V. cava superior
Ascending aorta
Aorta ascendens
Aortic orifice
Ostium arteriosum sinistrum
Atrium of the right auricle[1]
Atrium dextrum
Right auriculoventricular aperture[4]
Ostium venosum dextrum
Auriculoventricular groove or furrow[5]
Sulcus coronarius
Internal jugular vein
V. jugularis interna
Left common carotid artery
A. carotis communis sinistra
Left subclavian vein
V. subclavia sinistra
Left innominate vein
V. anonyma sinistra
Left superior pulmonary vein
V. pulmonalis sinistra superior
Pulmonary artery (main trunk)
A. pulmonalis
Pulmonary orifice
Ostium arteriosum dextrum
Left auricular appendix[1]
Auricula sinistra
Left auriculoventricular aperture[2] (1)
Anterior interventricular groove or furrow[5]
Sulcus longitudinalis anterior
Left ventricle
Ventriculus sinister
Right ventricle
Ventriculus dexter
Apex of the heart
Apex cordis
1/3

(1) Ostium venosum sinistrum

[1] See Appendix, note 113.

[2] Or *mitral orifice.*

[3] Companion to the *thyroidea ima artery*—see note [1] to p. 590.—Tr.

[4] Or *tricuspid orifice.*

[5] See note 5 to p. 566.

Fig. 976.—Position of the Heart and the Great Vessels and of the Cardiac Orifices, and the Projection-Outlines of these Structures on the Anterior Wall of the Thorax.

After preliminary hardening with formalin, the pericardium was exposed in the intercostal spaces. The sternum was then sawn across horizontally at the level of the second and the sixth intercostal spaces, and was removed with a sufficient extent of the attached ribs and rib-cartilages to lay the heart fully bare. The excised portion of the wall of the thorax having been replaced in its position, the preparation was then photographed, first with, and then without, the excised segment, and the projection-outline of the heart was thus determined. By means of suitable incisions, the position and extent of the respective orifices was determined, as well as their projection-outlines upon the anterior surface of the heart. The cartilage of the eighth rib is in this specimen directly attached to the sternum; and the innominate and the left common carotid artery arise from the aorta by a common trunk.

Position and Projection-Outlines of the Heart, the Cardiac Orifices, and the Great Vessels.

ARTERIA PULMONALIS
THE PULMONARY ARTERY

ARTERIÆ TRUNCI
THE ARTERIES OF THE TRUNK

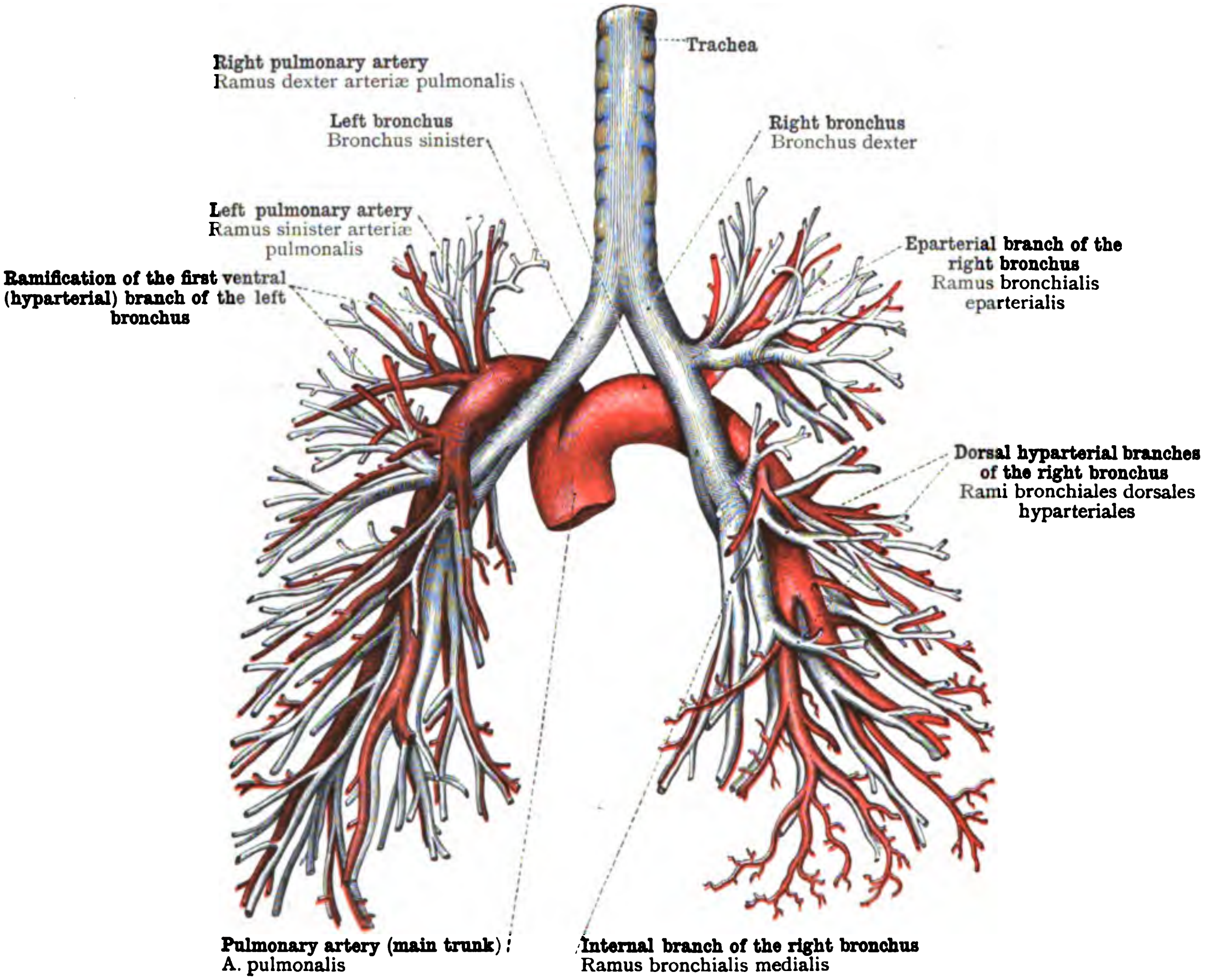

Right pulmonary artery
Ramus dexter arteriæ pulmonalis
Left bronchus
Bronchus sinister
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Ramification of the first ventral (hyparterial) branch of the left bronchus
Trachea
Right bronchus
Bronchus dexter
Eparterial branch of the right bronchus
Ramus bronchialis eparterialis
Dorsal hyparterial branches of the right bronchus
Rami bronchiales dorsales hyparteriales
Pulmonary artery (main trunk)
A. pulmonalis
Internal branch of the right bronchus
Ramus bronchialis medialis

FIG. 977.—THE MAIN TRUNK OF THE PULMONARY ARTERY, ARTERIA PULMONALIS; ITS BIFURCATION INTO THE RIGHT AND THE LEFT PULMONARY ARTERY, RAMUS DEXTER ET RAMUS SINISTER ARTERIÆ PULMONALIS; THE RAMIFICATION OF THE PULMONARY ARTERIES WITHIN THE LUNG, AND THEIR RELATION TO THE BRONCHIAL RAMIFICATION. SEEN FROM BEHIND.

Arteria pulmonalis—The pulmonary artery.

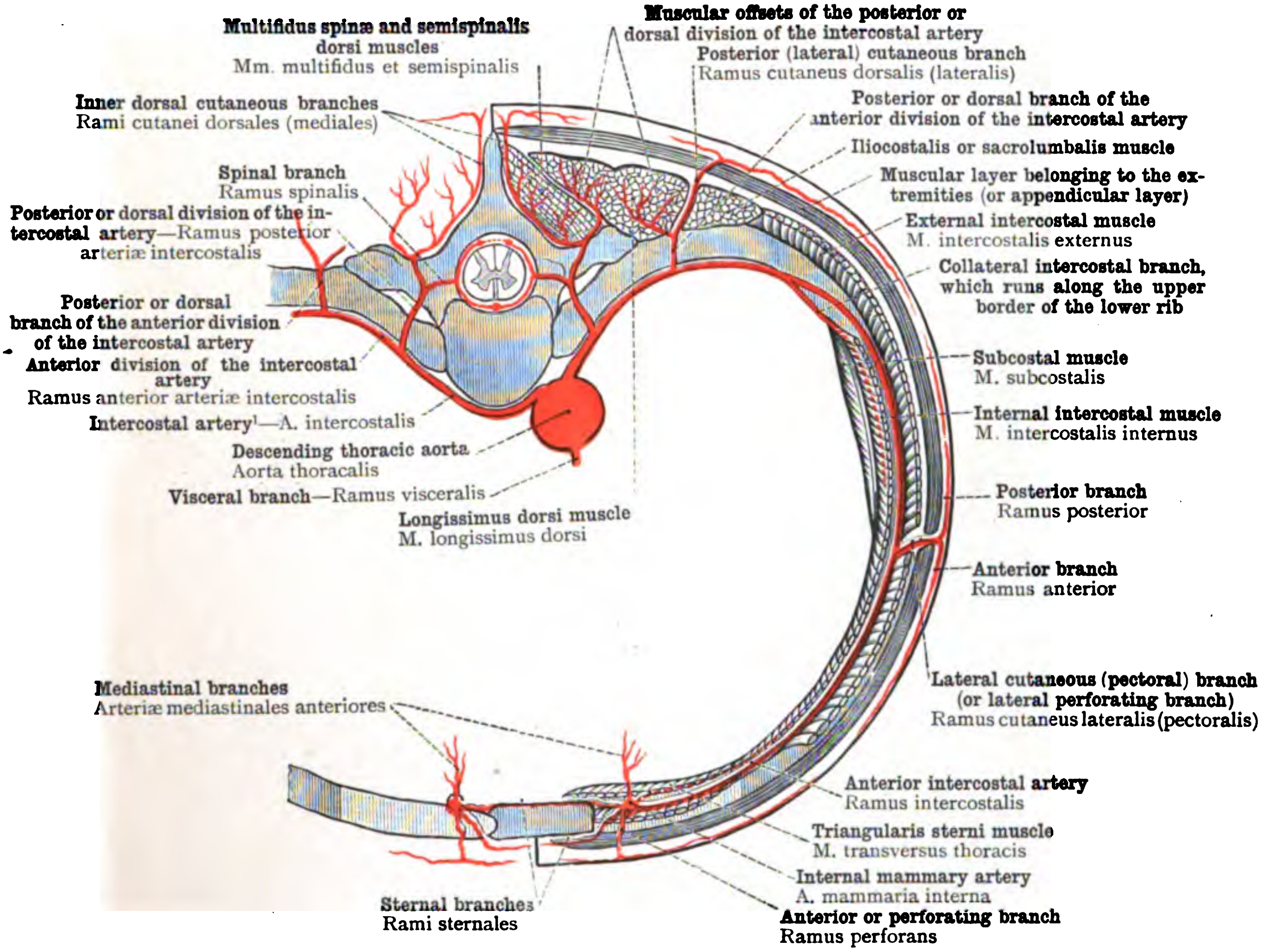
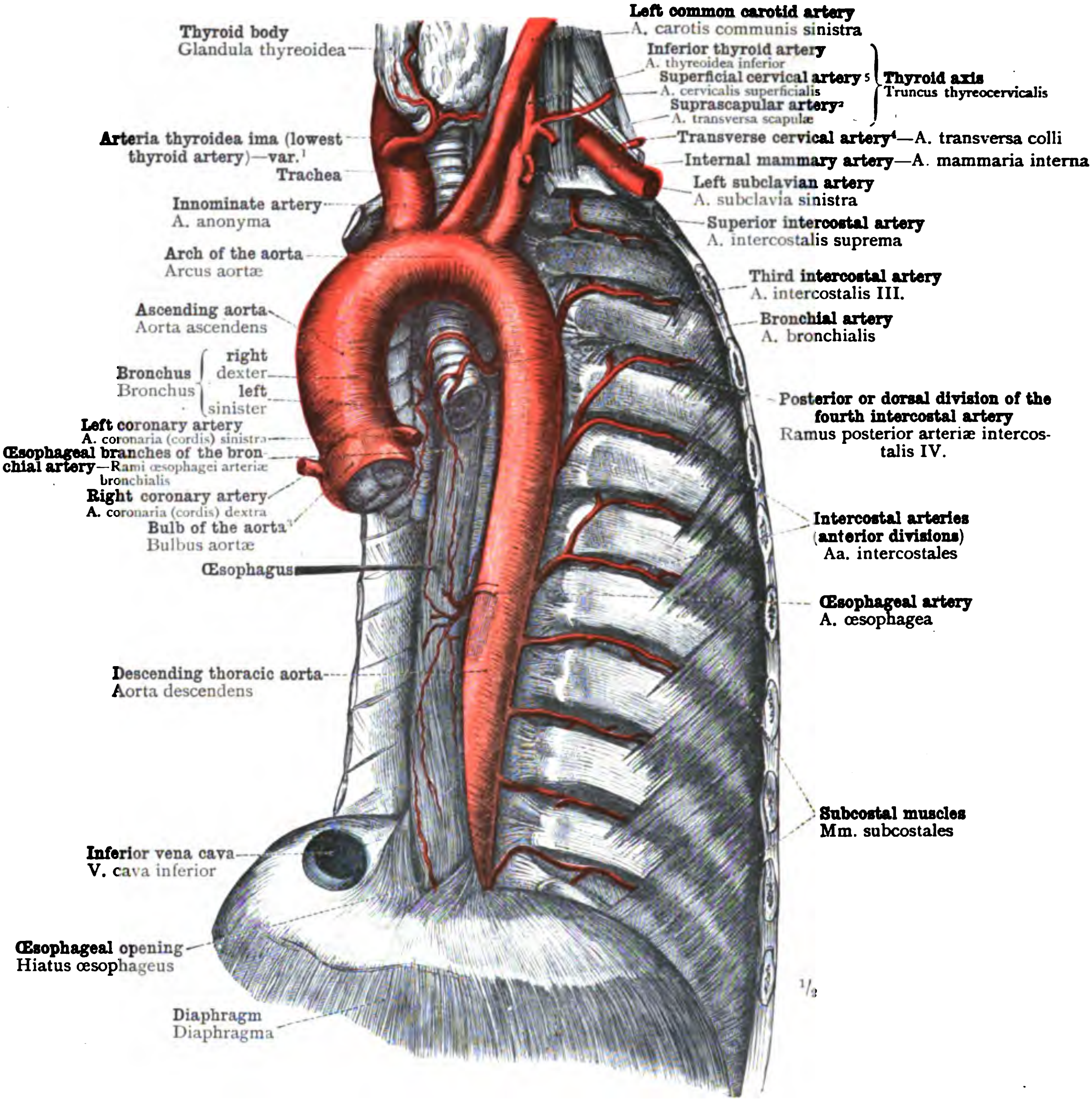

Multifidus spinæ and semispinalis dorsi muscles
Mm. multifidus et semispinalis
Muscular offsets of the posterior or dorsal division of the intercostal artery
Posterior (lateral) cutaneous branch
Ramus cutaneus dorsalis (lateralis)
Inner dorsal cutaneous branches
Rami cutanei dorsales (mediales)
Posterior or dorsal branch of the anterior division of the intercostal artery
Iliocostalis or sacrolumbalis muscle
Spinal branch
Ramus spinalis
Muscular layer belonging to the extremities (or appendicular layer)
Posterior or dorsal division of the intercostal artery—Ramus posterior arteriæ intercostalis
External intercostal muscle
M. intercostalis externus
Collateral intercostal branch, which runs along the upper border of the lower rib
Posterior or dorsal branch of the anterior division of the intercostal artery
Anterior division of the intercostal artery
Ramus anterior arteriæ intercostalis
Subcostal muscle
M. subcostalis
Intercostal artery¹—A. intercostalis
Internal intercostal muscle
M. intercostalis internus
Descending thoracic aorta
Aorta thoracalis
Visceral branch—Ramus visceralis
Posterior branch
Ramus posterior
Longissimus dorsi muscle
M. longissimus dorsi
Anterior branch
Ramus anterior
Lateral cutaneous (pectoral) branch (or lateral perforating branch)
Ramus cutaneus lateralis (pectoralis)
Mediastinal branches
Arteriæ mediastinales anteriores
Anterior intercostal artery
Ramus intercostalis
Triangularis sterni muscle
M. transversus thoracis
Internal mammary artery
A. mammaria interna
Sternal branches
Rami sternales
Anterior or perforating branch
Ramus perforans

FIG. 978.—DIAGRAMMATIC REPRESENTATION OF THE DISTRIBUTION OF THE ARTERIES SUPPLYING THE BODY-WALL, SHOWN IN A THORACIC SEGMENT.[1]

---

[1] *Intercostal Arteries.*—Quain's description of the distribution of these arteries differs somewhat from that given in the text. The main trunk of the *intercostal artery* runs along the lower border of the upper rib, and ends by anatomosing with one of the anterior intercostal branches of the internal mammary artery. Its branches are (1) *posterior* or *dorsal* (*ramus posterior*), which gives *spinal*, *muscular*, and *cutaneous* offsets (*ramus spinalis*, *rami musculares*, *rami cutanei dorsales mediales*), (2) the *collateral intercostal* branch, which runs along the upper border of the lower rib, and ends by anastomosing with the lower of the two anterior intercostal arteries given to each space by the internal mammary artery. The *ramus dorsalis* of the anterior division is not described by Quain; the *ramus cutaneus lateralis* (*pectoralis*), which accompanies the lateral cutaneous branch of the intercostal nerve, is named by that author only in the section on the "Morphology of the Arterial System," where it is shown to belong to the series of *lateral perforating arteries.*—TR.

Diagram of the Arteries of the Body-Wall.



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[1] *Arteria Thyroidea Ima* (*Lowest Thyroid Artery*).—This artery is met with on an average in one body in every ten. It may arise from the innominate trunk (most frequently), from the right common carotid, or from the aorta. In exceptional instances it springs from the internal mammary or from the subclavian artery. Its size is a very variable one, being related inversely to that of the other thyroid arteries. Lying in front of the trachea, this vessel, like the inferior thyroid veins, is endangered in the operation of tracheotomy.—Tr.

[2] Known also as the *transverse scapular* or *transverse humeral artery*.

[3] See note [1] to p. 569.

[4] Or *posterior scapular artery* (Macalister). See Appendix, notes [134], [135], [172].

[5] See Appendix, notes [134], [135], [172], [208].

FIG. 979.—AORTA THORACALIS, THE THORACIC AORTA (CONSISTING OF THE ASCENDING AORTA, THE ARCH OF THE AORTA, AND THE DESCENDING THORACIC AORTA), WITH ITS VISCERAL AND PARIETAL BRANCHES SEEN FROM THE LEFT SIDE AND BEFORE. BRONCHIAL ARTERIES, ARTERIÆ BRONCHIALES. ŒSOPHAGEAL ARTERIES, ARTERIÆ ŒSOPHAGEÆ. INTERCOSTAL ARTERIES, ARTERIÆ INTERCOSTALES, IN ALL THE LEFT INTERCOSTAL SPACES EXCEPT THE UPPERMOST, ARE EXPOSED AS FAR FORWARDS AS THE INTERNAL INTERCOSTAL AND SUBCOSTAL MUSCLES. THEIR DIVISION INTO ANTERIOR AND POSTERIOR BRANCHES (RAMI ANTERIORES ET POSTERIORES) IS SEEN, AND THE ORIGIN OF THE MUSCULAR BRANCHES (RAMI MUSCULARES) OF THE FORMER.

The specimen shows a frequent variety in the origin of the fourth and fifth and of the sixth and seventh intercostal arteries from common roots. The second intercostal artery consists of the distal portion of the superior intercostal artery (arteria intercostalis suprema), which arises from the costocervical axis (truncus costocervicalis—*see Appendix, note* [177]). From the subclavian artery arises the abnormal lowest thyroid artery of Neubauer, arteria thyroidea ima (*see note* [1] *above*).

Aorta thoracalis, the thoracic aorta.—Aa. bronchiales et œsophageæ, the bronchial and œsophageal arteries.—Aa. intercostales, the intercostal arteries.

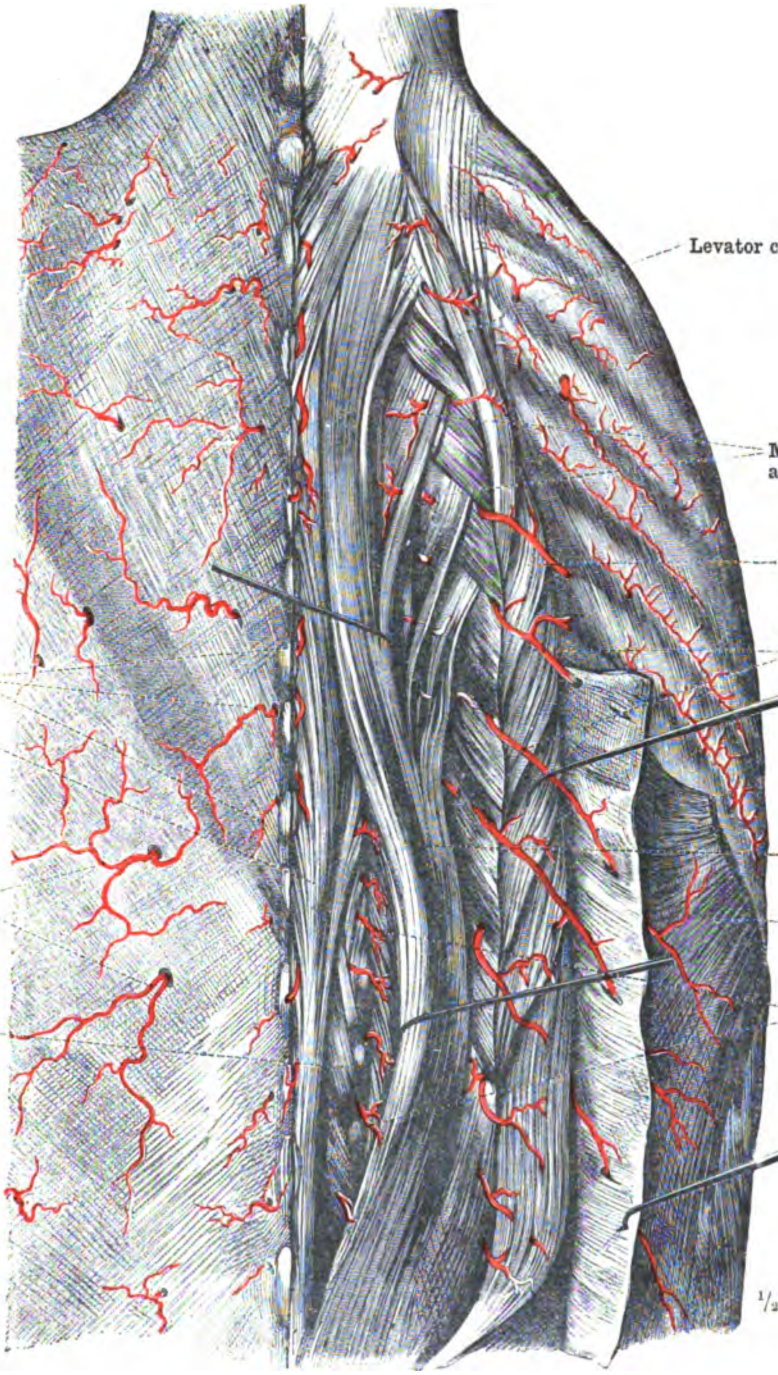

Levator costæ muscle
Muscular branches of the anterior divisions of the intercostal arteries
Iliocostalis muscle
M. iliocostalis
Dorsal (lateral) cutaneous branches of the anterior divisions of the intercostal arteries
(Inner) dorsal cutaneous branches
Rami cutanei dorsales (mediales)
Spinalis dorsi muscle
(Outer) dorsal cutaneous branches
Rami cutanei dorsales (laterales)
Semispinalis dorsi muscle
Longissimus dorsi muscle
Latissimus dorsi muscle
Muscular branches of the posterior divisions of the intercostal arteries
Superficial or posterior layer of the lumbar fascia
Fascia lumbodorsalis
1/2

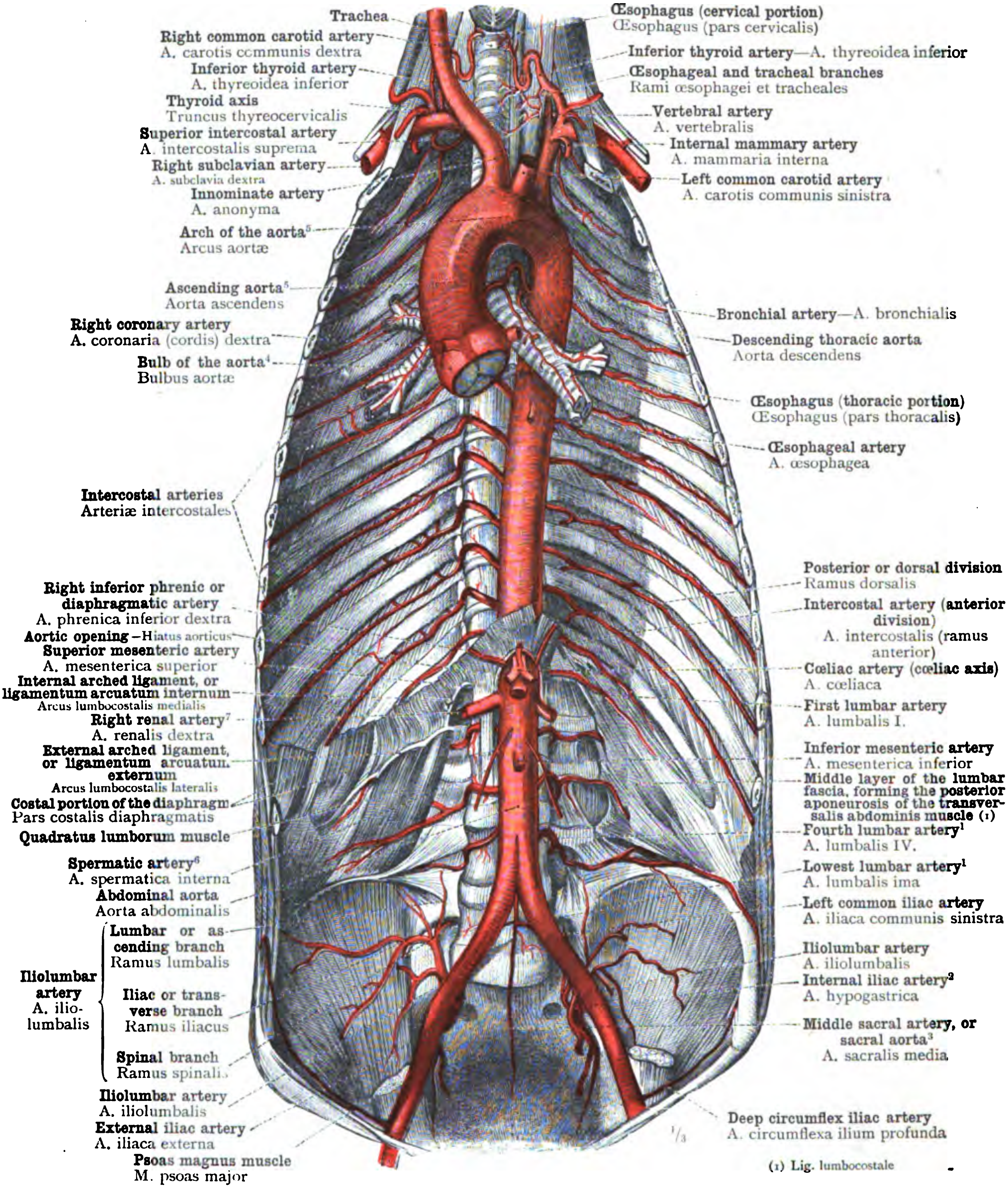
FIG. 980.—RAMIFICATION OF THE POSTERIOR OR DORSAL BRANCHES OF THE INTERCOSTAL ARTERIES IN THE BACK.

On the left side we see the inner and outer cutaneous branches; on the right side, chiefly the muscular branches. On the right side the superficial or posterior layer of the lumbar fascia (by some anatomists termed "the aponeurosis of the latissimus dorsi muscle"—*see Part III., Fig. 507, p. 266, Fig. 508, p. 267, and note 1 to the latter page*) has been detached from the spinous processes and turned outwards; the iliocostalis muscle has been drawn outwards; and the longissimus dorsi muscle has been drawn outwards below, inwards above.

RAMI MUSCULARES ET RAMI CUTANEI DORSALES, MEDIALES ET LATERALES; THE INNER AND OUTER MUSCULAR AND CUTANEOUS POSTERIOR OR DORSAL BRANCHES OF THE INTERCOSTAL ARTERIES.

The outer row of branches is derived from the posterior or dorsal branches of the anterior divisions of the intercostal arteries, which divide between the longissimus dorsi and the iliocostalis muscles into inner and outer twigs.

Rami Posteriores, Posterior or Dorsal Branches, of the Intercostal Arteries.

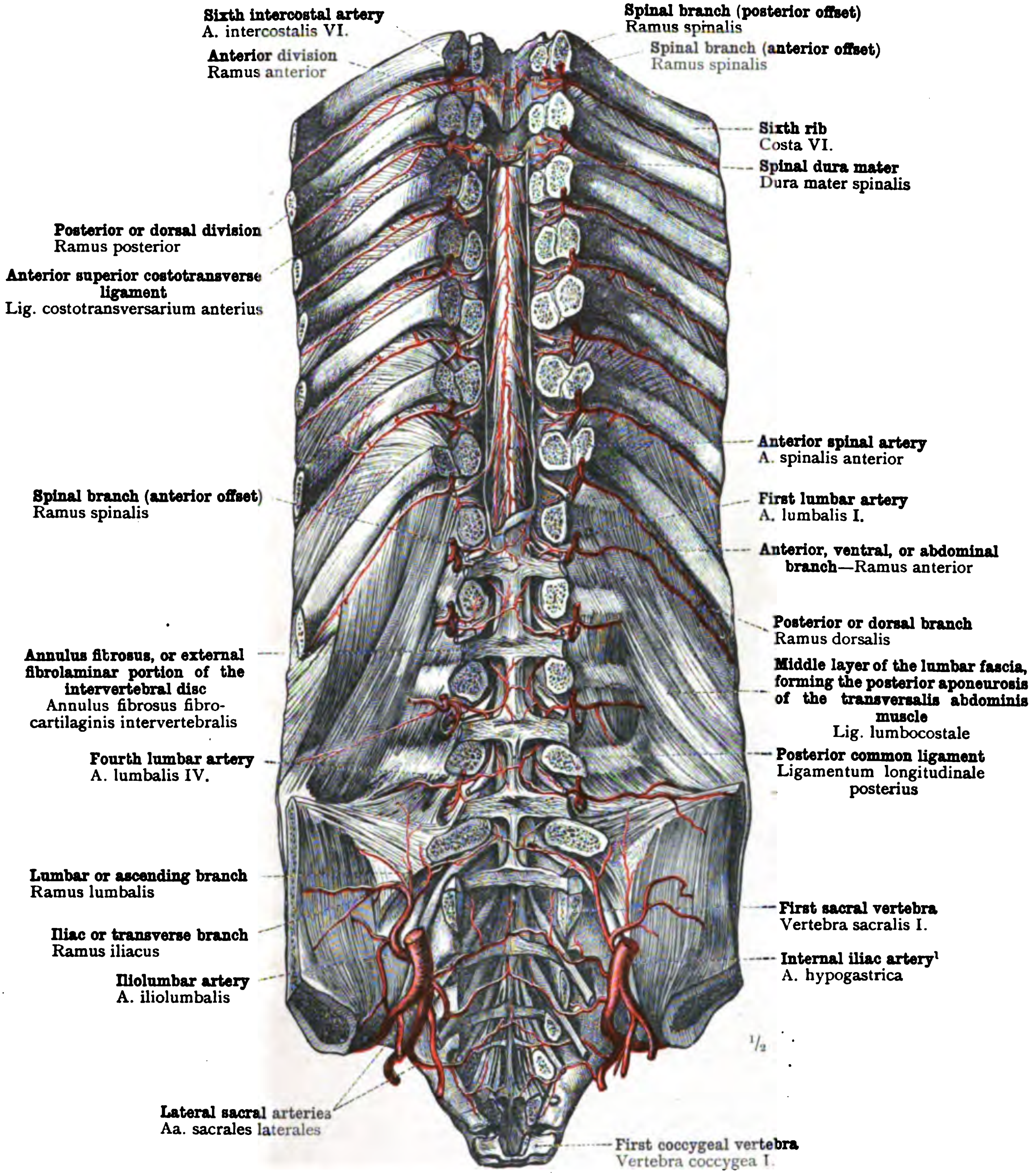

Trachea
Right common carotid artery
A. carotis communis dextra
Inferior thyroid artery
A. thyreoidea inferior
Thyroid axis
Truncus thyreocervicalis
Superior intercostal artery
A. intercostalis suprema
Right subclavian artery
A. subclavia dextra
Innominate artery
A. anonyma
Arch of the aorta[5]
Arcus aortæ
Ascending aorta[5]
Aorta ascendens
Right coronary artery
A. coronaria (cordis) dextra
Bulb of the aorta[4]
Bulbus aortæ
Intercostal arteries
Arteriæ intercostales
Right inferior phrenic or diaphragmatic artery
A. phrenica inferior dextra
Aortic opening – Hiatus aorticus
Superior mesenteric artery
A. mesenterica superior
Internal arched ligament, or ligamentum arcuatum internum
Arcus lumbocostalis medialis
Right renal artery[7]
A. renalis dextra
External arched ligament, or ligamentum arcuatum externum
Arcus lumbocostalis lateralis
Costal portion of the diaphragm
Pars costalis diaphragmatis
Quadratus lumborum muscle
Spermatic artery[6]
A. spermatica interna
Abdominal aorta
Aorta abdominalis
Iliolumbar artery
A. iliolumbalis
Lumbar or ascending branch
Ramus lumbalis
Iliac or transverse branch
Ramus iliacus
Spinal branch
Ramus spinalis
Iliolumbar artery
A. iliolumbalis
External iliac artery
A. iliaca externa
Psoas magnus muscle
M. psoas major
Œsophagus (cervical portion)
Œsophagus (pars cervicalis)
Inferior thyroid artery—A. thyreoidea inferior
Œsophageal and tracheal branches
Rami œsophagei et tracheales
Vertebral artery
A. vertebralis
Internal mammary artery
A. mammaria interna
Left common carotid artery
A. carotis communis sinistra
Bronchial artery—A. bronchialis
Descending thoracic aorta
Aorta descendens
Œsophagus (thoracic portion)
Œsophagus (pars thoracalis)
Œsophageal artery
A. œsophagea
Posterior or dorsal division
Ramus dorsalis
Intercostal artery (anterior division)
A. intercostalis (ramus anterior)
Cœliac artery (cœliac axis)
A. cœliaca
First lumbar artery
A. lumbalis I.
Inferior mesenteric artery
A. mesenterica inferior
Middle layer of the lumbar fascia, forming the posterior aponeurosis of the transversalis abdominis muscle (1)
Fourth lumbar artery[1]
A. lumbalis IV.
Lowest lumbar artery[1]
A. lumbalis ima
Left common iliac artery
A. iliaca communis sinistra
Iliolumbar artery
A. iliolumbalis
Internal iliac artery[2]
A. hypogastrica
Middle sacral artery, or sacral aorta[3]
A. sacralis media
Deep circumflex iliac artery
A. circumflexa ilium profunda
1/3
(1) Lig. lumbocostale

[1] See Appendix, note 126.
[2] See Appendix, note 120.
[3] See Appendix, note 127.
[4] See note 1 to p. 569.
[5] See Appendix, note 128.
[6] See Appendix, note 129.
[7] See note 3 to p. 595.

FIG. 981.—PARIETAL BRANCHES OF THE THORACIC AND ABDOMINAL AORTA: THE INTERCOSTAL ARTERIES, THE LUMBAR ARTERIES, AND THE MIDDLE SACRAL ARTERY, OR SACRAL AORTA.

The visceral branches of the aorta, with the exception of the bronchial artery, have been cut away close to their origin.

Arteriæ intercostales et lumbales—The intercostal and lumbar arteries.


Sixth intercostal artery
A. intercostalis VI.
Anterior division
Ramus anterior
Spinal branch (posterior offset)
Ramus spinalis
Spinal branch (anterior offset)
Ramus spinalis
Sixth rib
Costa VI.
Spinal dura mater
Dura mater spinalis
Posterior or dorsal division
Ramus posterior
Anterior superior costotransverse ligament
Lig. costotransversarium anterius
Anterior spinal artery
A. spinalis anterior
Spinal branch (anterior offset)
Ramus spinalis
First lumbar artery
A. lumbalis I.
Anterior, ventral, or abdominal branch—Ramus anterior
Posterior or dorsal branch
Ramus dorsalis
Annulus fibrosus, or external fibrolaminar portion of the intervertebral disc
Annulus fibrosus fibrocartilaginis intervertebralis
Middle layer of the lumbar fascia, forming the posterior aponeurosis of the transversalis abdominis muscle
Lig. lumbocostale
Fourth lumbar artery
A. lumbalis IV.
Posterior common ligament
Ligamentum longitudinale posterius
Lumbar or ascending branch
Ramus lumbalis
First sacral vertebra
Vertebra sacralis I.
Iliac or transverse branch
Ramus iliacus
Internal iliac artery[1]
A. hypogastrica
Iliolumbar artery
A. iliolumbalis
1/2
Lateral sacral arteries
Aa. sacrales laterales
First coccygeal vertebra
Vertebra coccygea I.

[1] See Appendix, note 120.

FIG. 982.—RAMI SPINALES, THE SPINAL BRANCHES, OF THE INTERCOSTAL, LUMBAR, AND LATERAL SACRAL ARTERIES (ARTERIÆ INTERCOSTALES, LUMBALES, ET SACRALES LATERALES), SEEN FROM BEFORE.

The spinal canal and the intervertebral foramina have been opened by the removal of the vertebral bodies or centra. Down to the eighth dorsal vertebra, the spinal cord and the dura mater have been removed; from the eighth dorsal to the first lumbar vertebra, the spinal cord has been laid bare by the removal of the dura mater; below the first lumbar vertebra the posterior common ligament and the hindmost portions of the intervertebral discs have been left intact.

The Arteries of the Spinal Canal.

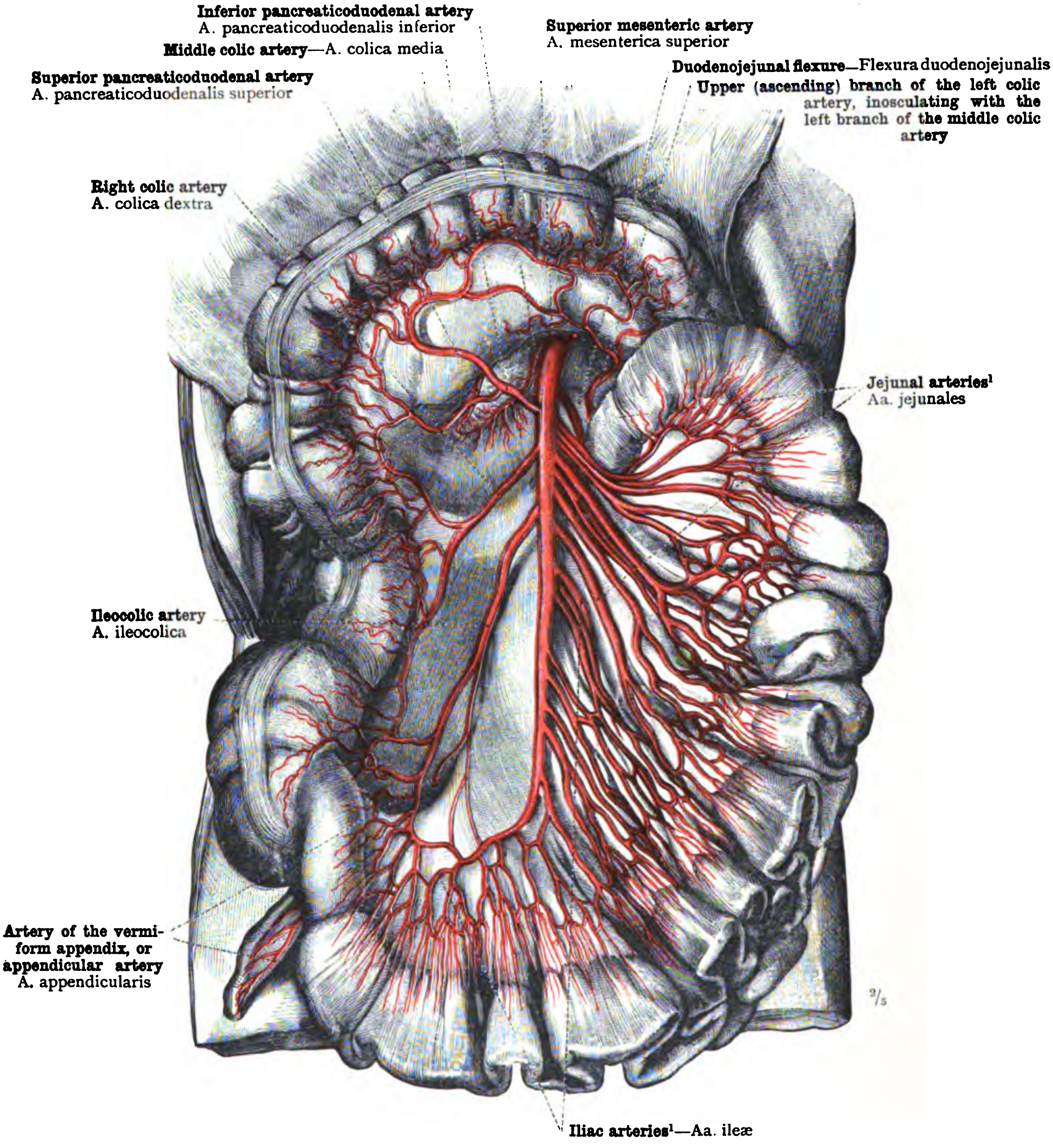

Inferior pancreaticoduodenal artery
A. pancreaticoduodenalis inferior
Middle colic artery—A. colica media
Superior pancreaticoduodenal artery
A. pancreaticoduodenalis superior
Superior mesenteric artery
A. mesenterica superior
Duodenojejunal flexure—Flexura duodenojejunalis
Upper (ascending) branch of the left colic artery, inosculating with the left branch of the middle colic artery
Right colic artery
A. colica dextra
Jejunal arteries[1]
Aa. jejunales
Ileocolic artery
A. ileocolica
Artery of the vermiform appendix, or appendicular artery
A. appendicularis
2/5
Iliac arteries[1]—Aa. ileæ

Fig. 985.—The Distribution of the Superior Mesenteric Artery, Arteria Mesenterica Superior. The Intestinal Arteries, Arteriæ Intestinales: Superior Pancreaticoduodenal Artery, Arteria Pancreaticoduodenalis Superior; Jejunal and Iliac Arteries, Arteriæ Jejunales et Iliacæ; Ileocolic Artery, Arteria Ileocolica, giving off the Artery of the Vermiform Appendix or Appendicular Artery, Arteria Appendicularis; the Right Colic Artery, Arteria Colica Dextra; the Middle Colic Artery, Arteria Colica Media.

The jejunum and ileum with their mesentery have been drawn to the left side; the colon and the transverse mesocolon have been drawn upwards.

The Asymmetrical Visceral Branches of the Abdominal Aorta.

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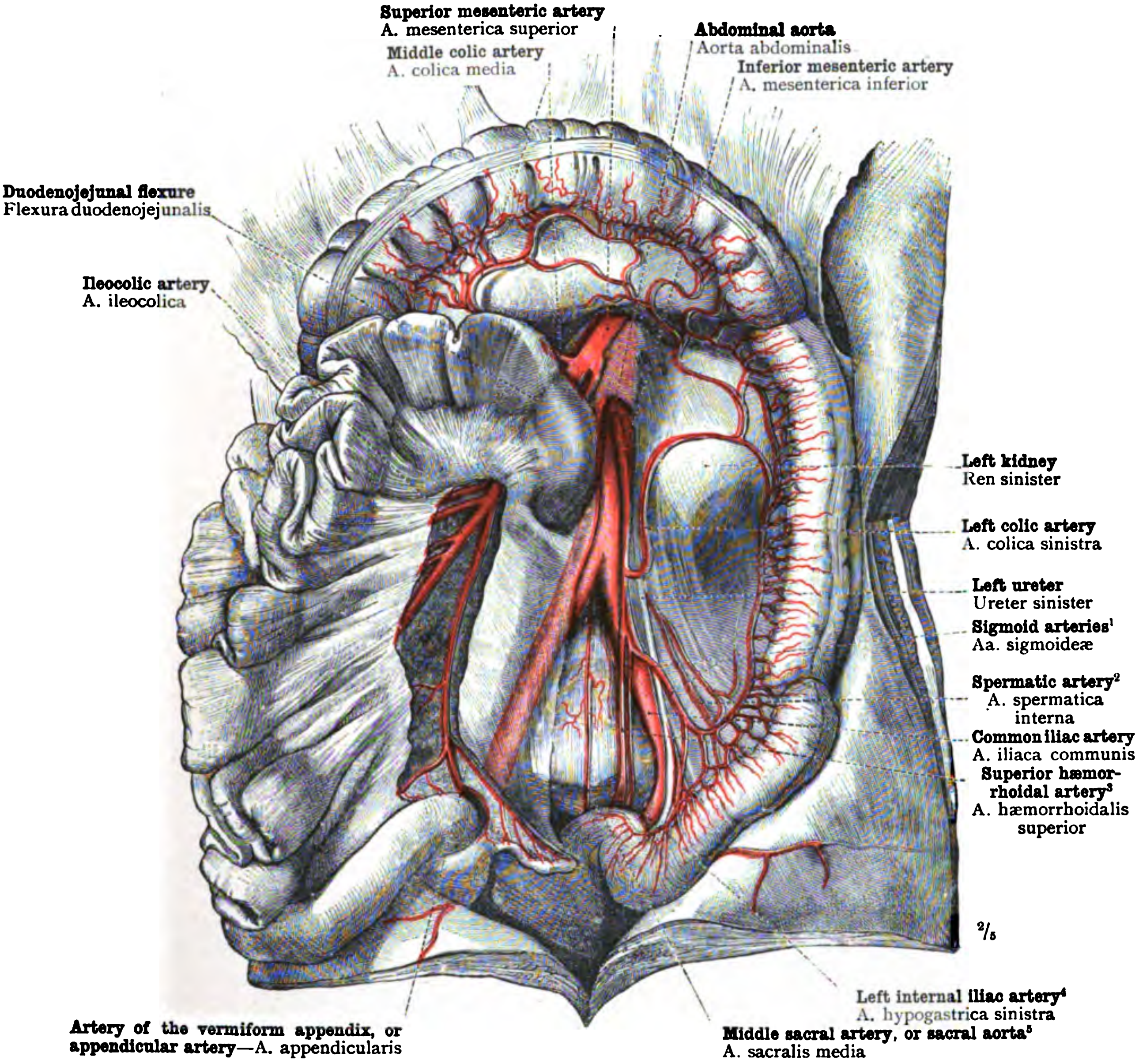
[1] *Jejunal and Iliac Arteries.*—Quain calls these indifferently the *intestinal branches* of the superior mesenteric artery; but Macalister, like Toldt, classifies the upper half as *jejunal*, and the lower half as *iliac arteries.*—Tr.



[1] *Sigmoid Artery.*—This branch of the inferior mesenteric artery is described as normally single. Two *sigmoid arteries*, as in the specimen figured above, are, however, of quite frequent occurrence; and in some instances as many as three may be met with.—Tr.

[2] See Appendix, note 129.

[3] Called by Macalister the *superior rectal artery.*

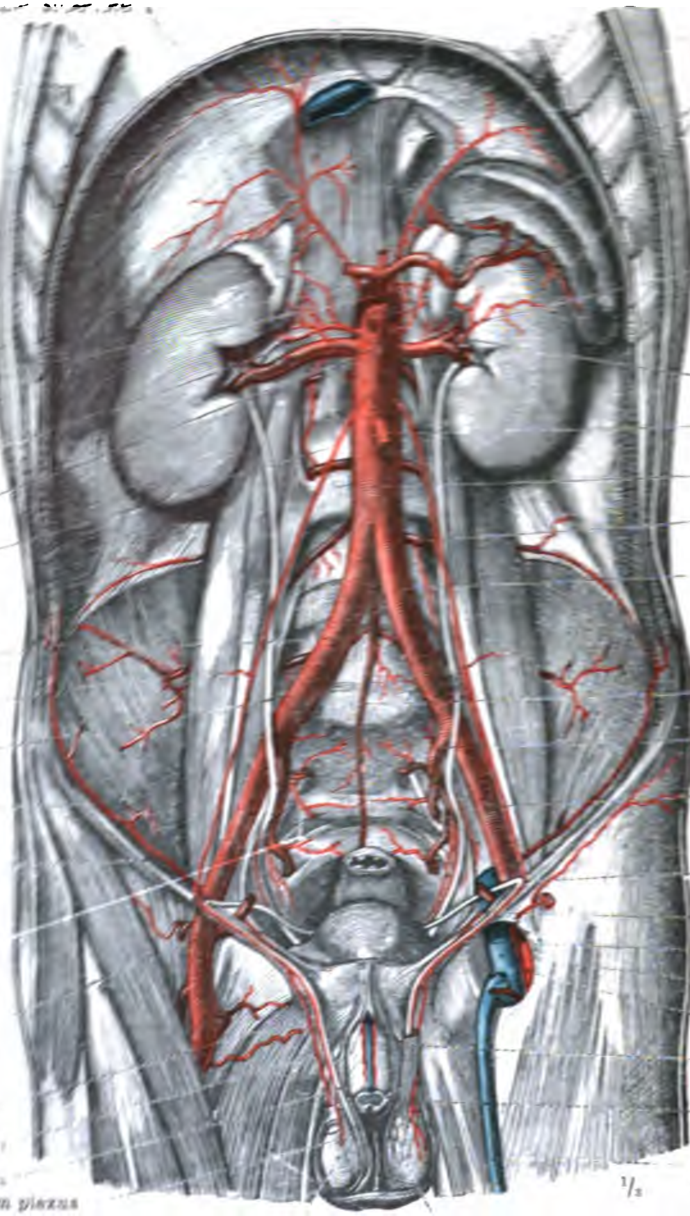
[4] See Appendix, note 120.

[5] See Appendix, note 127.

FIG. 986.—THE DISTRIBUTION OF THE INFERIOR MESENTERIC ARTERY, ARTERIA MESENTERICA INFERIOR: THE LEFT COLIC ARTERY, ARTERIA COLICA SINISTRA, AND ITS INOSCULATION WITH THE MIDDLE COLIC ARTERY, ARTERIA COLICA MEDIA; THE SIGMOID ARTERIES, ARTERIÆ SIGMOIDEÆ, AND THE SUPERIOR HÆMORRHOIDAL (OR SUPERIOR RECTAL) ARTERY, ARTERIA HÆMORRHOIDALIS SUPERIOR. THE ILEOCOLIC ARTERY, ARTERIA ILEOCOLICA, DERIVED FROM THE SUPERIOR MESENTERIC ARTERY, ARTERIA MESENTERICA SUPERIOR, AND SUPPLYING THE ARTERY OF THE VERMIFORM APPENDIX OR APPENDICULAR ARTERY, ARTERIA APPENDICULARIS.

In the preparation shown in Fig. 985, the colon and the transverse mesocolon were drawn upwards; the jejunum and ileum with their mesentery to the left. By cutting through the left peritoneal layer of the mesentery of the small intestine, the ileocolic artery was exposed, and its offset to the vermiform appendix (appendicular artery) was traced to its destination.

The Asymmetrical Visceral Branches of the Abdominal Aorta.



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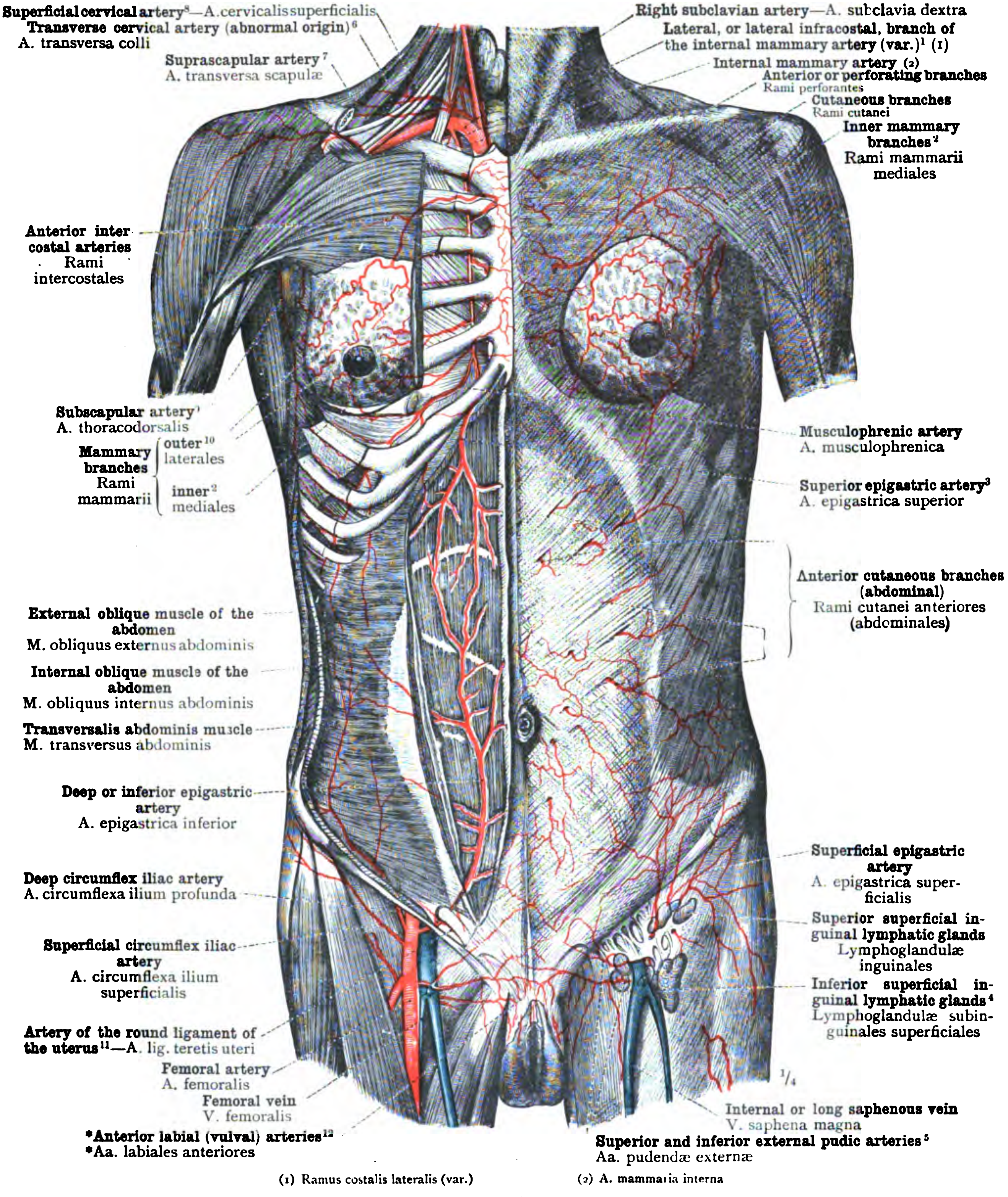
[1] See Appendix, note [illegible].
[2] See Appendix, note 120.
[3] See Appendix, note 129.
[4] Arteria testicularis. This name is used by the author as a synonym for *arteria spermatica interna*, the spermatic artery of [illegible]. (See Appendix, note [illegible].)—Tr.
[5] See Appendix, note 126.

FIG. [illegible]. THE PARIETAL BRANCHES AND THE SYMMETRICAL (PAIRED) VISCERAL BRANCHES OF THE ABDOMINAL AORTA. THE INFERIOR PHRENIC OR INFERIOR DIAPHRAGMATIC ARTERIES AND THE LUMBAR ARTERIES; THE MIDDLE SACRAL ARTERY, OR SACRAL AORTA, AND THE LATERAL SACRAL ARTERIES; THE SPLENIC ARTERIES, THE RENAL OR EMULGENT ARTERIES (*see note* ³ *to p.* 595), AND THE SUPRARENAL OR CAPSULAR ARTERIES; THE SPERMATIC ARTERIES (ARTERIÆ TESTICULARES ET ARTERIÆ SPERMATICÆ INTERNÆ), AND THE CREMASTERIC ARTERIES (ARTERIÆ SPERMATICÆ EXTERNÆ) *see Appendix*, *note* ¹²⁹.

The abdominal viscera were removed, with the exception of the spleen, the kidneys, and the suprarenal capsules (adrenals). After removing the anterior half of the scrotum, the internal surface of the right testicle was laid bare by the removal of its coverings, in order to display the entrance of the spermatic artery into the gland; the left testicle was rotated inwards, in order to show the terminal ramification of the cremasteric artery on the infundibuliform fascia, and between the fasciculi of the cremaster muscle.

The Parietal Branches and the Symmetrical (Paired) Visceral Branches of the Abdominal Aorta.


Superficial cervical artery[8]—A. cervicalis superficialis
Transverse cervical artery (abnormal origin)[6]
A. transversa colli
Suprascapular artery[7]
A. transversa scapulæ
Right subclavian artery—A. subclavia dextra
Lateral, or lateral infracostal, branch of the internal mammary artery (var.)[1] (1)
Internal mammary artery (2)
Anterior or perforating branches
Rami perforantes
Cutaneous branches
Rami cutanei
Inner mammary branches[2]
Rami mammarii mediales
Anterior intercostal arteries
Rami intercostales
Subscapular artery[9]
A. thoracodorsalis
Mammary branches
Rami mammarii
outer[10]
laterales
inner[2]
mediales
Musculophrenic artery
A. musculophrenica
Superior epigastric artery[3]
A. epigastrica superior
Anterior cutaneous branches (abdominal)
Rami cutanei anteriores (abdominales)
External oblique muscle of the abdomen
M. obliquus externus abdominis
Internal oblique muscle of the abdomen
M. obliquus internus abdominis
Transversalis abdominis muscle
M. transversus abdominis
Deep or inferior epigastric artery
A. epigastrica inferior
Superficial epigastric artery
A. epigastrica superficialis
Deep circumflex iliac artery
A. circumflexa ilium profunda
Superior superficial inguinal lymphatic glands
Lymphoglandulæ inguinales
Superficial circumflex iliac artery
A. circumflexa ilium superficialis
Inferior superficial inguinal lymphatic glands[4]
Lymphoglandulæ subinguinales superficiales
Artery of the round ligament of the uterus[11]—A. lig. teretis uteri
Femoral artery
A. femoralis
Femoral vein
V. femoralis
1/4
Internal or long saphenous vein
V. saphena magna
*Anterior labial (vulval) arteries[12]
*Aa. labiales anteriores
Superior and inferior external pudic arteries[5]
Aa. pudendæ externæ
(1) Ramus costalis lateralis (var.)
(2) A. mammaria interna

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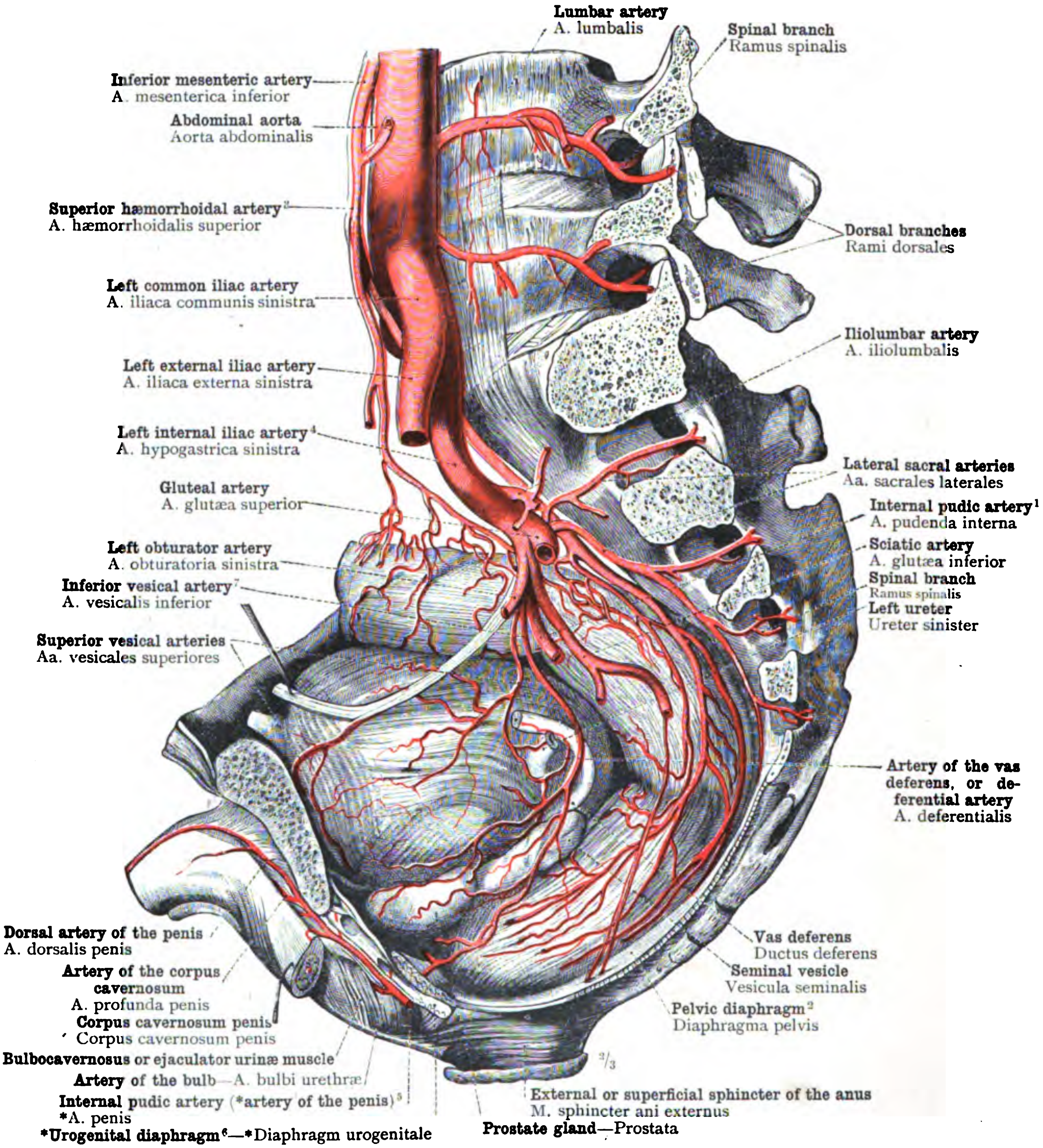
[1] See Appendix, note 132.
[2] See Appendix, note 133.
[3] Also called the *abdominal* branch of the internal mammary artery.
[4] Often called the *femoral lymphatic glands*.
[5] The upper of these is named by Macalister the *superior* or *superficial pubic*; the lower, the *inferior pubic artery*.—Tr.
[6] See Appendix, note 134.
[7] Called also the *transverse scapular* or *transverse humeral artery*.
[8] See Appendix, note 135.
[9] See Appendix, note 136.
[10] See Appendix, note 137.
[11] This branch of the inferior or deep epigastric artery is the homologue in the female of the *cremasteric artery* of the male.—Tr.
[12] See Appendix, note 138.

FIG. 988.—ON THE LEFT SIDE OF THE BODY THE SUPERFICIAL ARTERIES ARE SHOWN; ON THE RIGHT SIDE IN THE INTERCOSTAL SPACES THE INTERNAL MAMMARY ARTERY AND ITS MUSCULOPHRENIC BRANCH (ARTERIÆ MAMMARIA INTERNA ET MUSCULOPHRENICA) ARE EXPOSED, ALSO, BY PARTIAL REMOVAL OF THE RECTUS ABDOMINIS MUSCLE, THE SUPERIOR EPIGASTRIC ARTERY AND THE INFERIOR OR DEEP EPIGASTRIC ARTERY (ARTERIÆ EPIGASTRICÆ, SUPERIOR ET INFERIOR).

The Arteries of the Anterior Wall of the Trunk.



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[1] See Appendix, note 139.

[2] See Appendix, note 140.

[3] Called by Macalister the *superior rectal artery.*

[4] See Appendix, note 120.

[5] See Appendix, note 141.

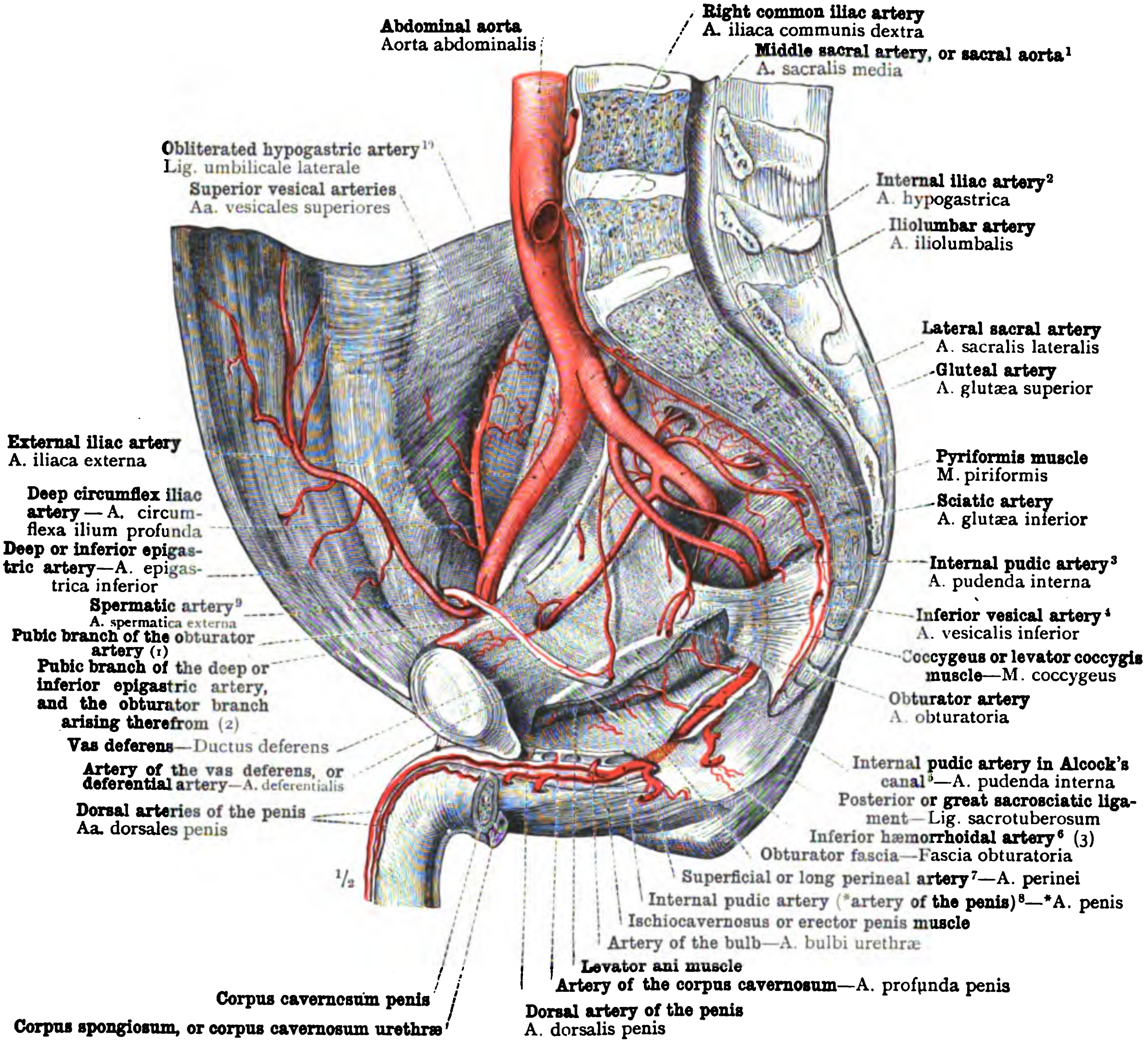
[6] See Appendix, note 142.

[7] See Appendix, note 143.

FIG. 989.—THE VISCERAL BRANCHES, RAMI VISCERALES, OF THE INTERNAL ILIAC ARTERY, ARTERIA HYPOGASTRICA (*see Appendix, note* 120), AS SEEN ON THE LEFT SIDE OF THE MALE PELVIS.

The left innominate bone was sawn through close to the pubic symphysis, and was removed together with the left part of the sacrum; a small part of the left side of the pelvic diaphragm (*see Appendix, note* 140) was preserved, and was drawn down a little towards the perineum. Further, by the removal of the transverse processes of the fourth and fifth lumbar vertebræ, the dorsal branches of the two lowest lumbar arteries and the lateral sacral arteries were displayed, and their spinal branches (rami spinales) were traced to their entrance into the spinal canal.

The Arteries of the Male Pelvic Viscera.


Abdominal aorta
Aorta abdominalis
Right common iliac artery
A. iliaca communis dextra
Middle sacral artery, or sacral aorta[1]
A. sacralis media
Obliterated hypogastric artery[10]
Lig. umbilicale laterale
Superior vesical arteries
Aa. vesicales superiores
Internal iliac artery[2]
A. hypogastrica
Iliolumbar artery
A. iliolumbalis
Lateral sacral artery
A. sacralis lateralis
Gluteal artery
A. glutæa superior
External iliac artery
A. iliaca externa
Pyriformis muscle
M. piriformis
Deep circumflex iliac artery—A. circumflexa ilium profunda
Sciatic artery
A. glutæa inferior
Deep or inferior epigastric artery—A. epigastrica inferior
Internal pudic artery[3]
A. pudenda interna
Spermatic artery[9]
A. spermatica externa
Inferior vesical artery[4]
A. vesicalis inferior
Pubic branch of the obturator artery (1)
Coccygeus or levator coccygis muscle—M. coccygeus
Pubic branch of the deep or inferior epigastric artery, and the obturator branch arising therefrom (2)
Obturator artery
A. obturatoria
Vas deferens—Ductus deferens
Artery of the vas deferens, or deferential artery—A. deferentialis
Internal pudic artery in Alcock's canal[5]—A. pudenda interna
Posterior or great sacrosciatic ligament—Lig. sacrotuberosum
Dorsal arteries of the penis
Aa. dorsales penis
Inferior hæmorrhoidal artery[6] (3)
Obturator fascia—Fascia obturatoria
1/2
Superficial or long perineal artery[7]—A. perinei
Internal pudic artery (*artery of the penis)[8]—*A. penis
Ischiocavernosus or erector penis muscle
Artery of the bulb—A. bulbi urethræ
Levator ani muscle
Artery of the corpus cavernosum—A. profunda penis
Corpus cavernosum penis
Dorsal artery of the penis
A. dorsalis penis
Corpus spongiosum, or corpus cavernosum urethræ

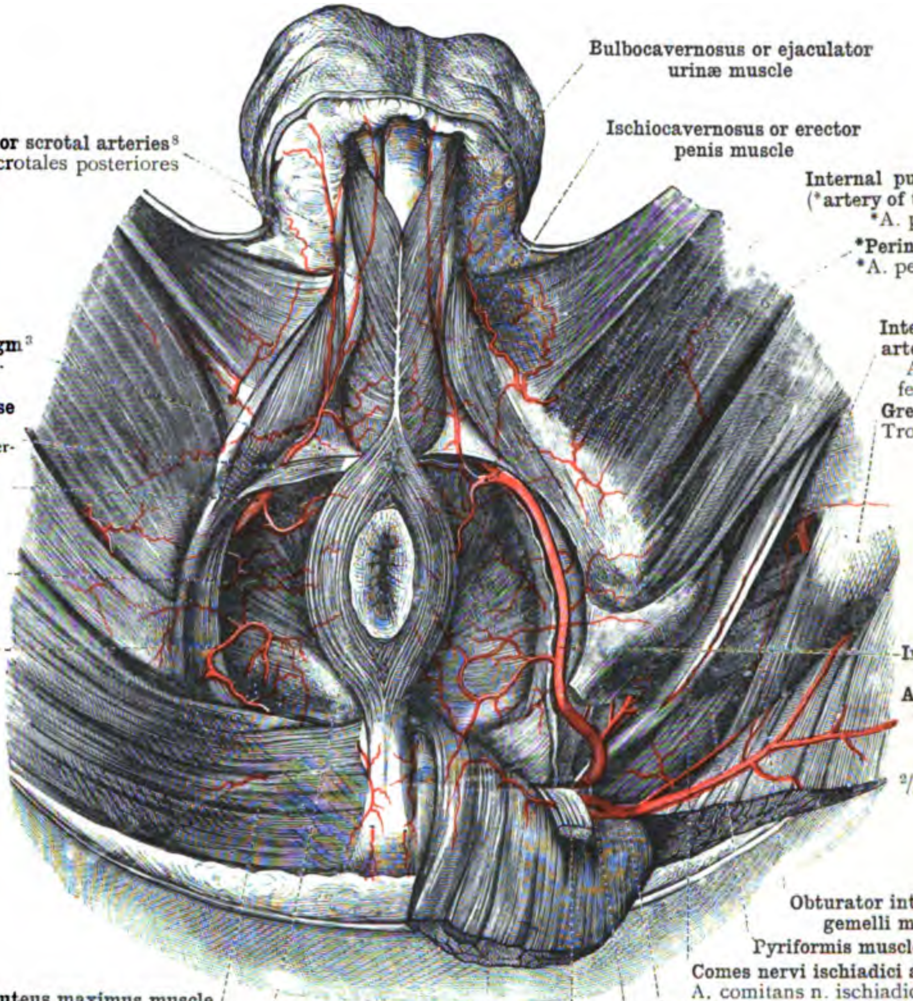
(1) Ramus pubicus arteriæ obturatoriæ (2) Ramus pubicus et ramus obturatorius arteriæ epigastricæ inferioris (3) A. hæmorrhoidalis inferior

[1] See Appendix, note 127.
[2] See Appendix, note 120.
[3] See Appendix, note 139.
[4] See Appendix, note 144.
[5] See Appendix, note 145.
[6] See Appendix, note 146.
[7] See Appendix, note 147.
[8] See Appendix, note 141.
[9] See Appendix, note 129.
[10] See Appendix, note 148.

Fig. 990.—The Parietal Branches, Rami Parietales, of the Internal Iliac Artery, Arteria Hypogastrica (*see Appendix, note* 120) : Arteria Iliolumbalis, the Iliolumbar Artery ; Arteria Sacralis Lateralis et Arteria Sacralis Media, the Lateral Sacral Artery and the Middle Sacral Artery (or Sacral Aorta—*see Appendix, note* 127) ; Arteria Glutæa Superior et Arteria Glutæa Inferior, the Gluteal Artery and the Sciatic Artery ; Arteria Obturatoria, the Obturator Artery, and the Anastomosis of its Pubic Branch (Ramus Pubicus) with the Obturator Branch (Ramus Obturatorius) of the Deep or Inferior Epigastric Artery (Arteria Epigastrica Inferior). Arteria Circumflexa Ilium Profunda, the Deep Circumflex Iliac Artery ; Arteria Epigastrica Inferior, the Deep or Inferior Epigastric Artery, with the Spermatic Artery (Arteria Spermatica Externa—*see Appendix, note* 129) and the Artery of the Vas Deferens or Deferential Artery (Arteria Deferentialis). The Course of the Internal Pudic Artery (Arteria Pudenda Interna), and the Origin of the Branches to the External Genital Organs (*see Appendix, notes* 139, 141, 145 *and* 147).

In the preparation shown in Fig. 989, the pelvic viscera and the remains of the left half of the pelvis were removed ; the levator ani muscle was turned upwards, and beneath this muscle the outer layer of the obturator fascia was removed to display the internal pudic artery in Alcock's canal (*see Appendix, note* 145). The bulb of the urethra and the left crus of the penis were removed, to show the entrance of the artery of the corpus cavernosum (arteria profunda penis) into the structure which it supplies, and the course of the dorsal artery of the penis (arteria dorsalis penis) on to the dorsum of the penis.

The Arteries of the Lateral Wall of the Pelvis and of the External Genital Organs.

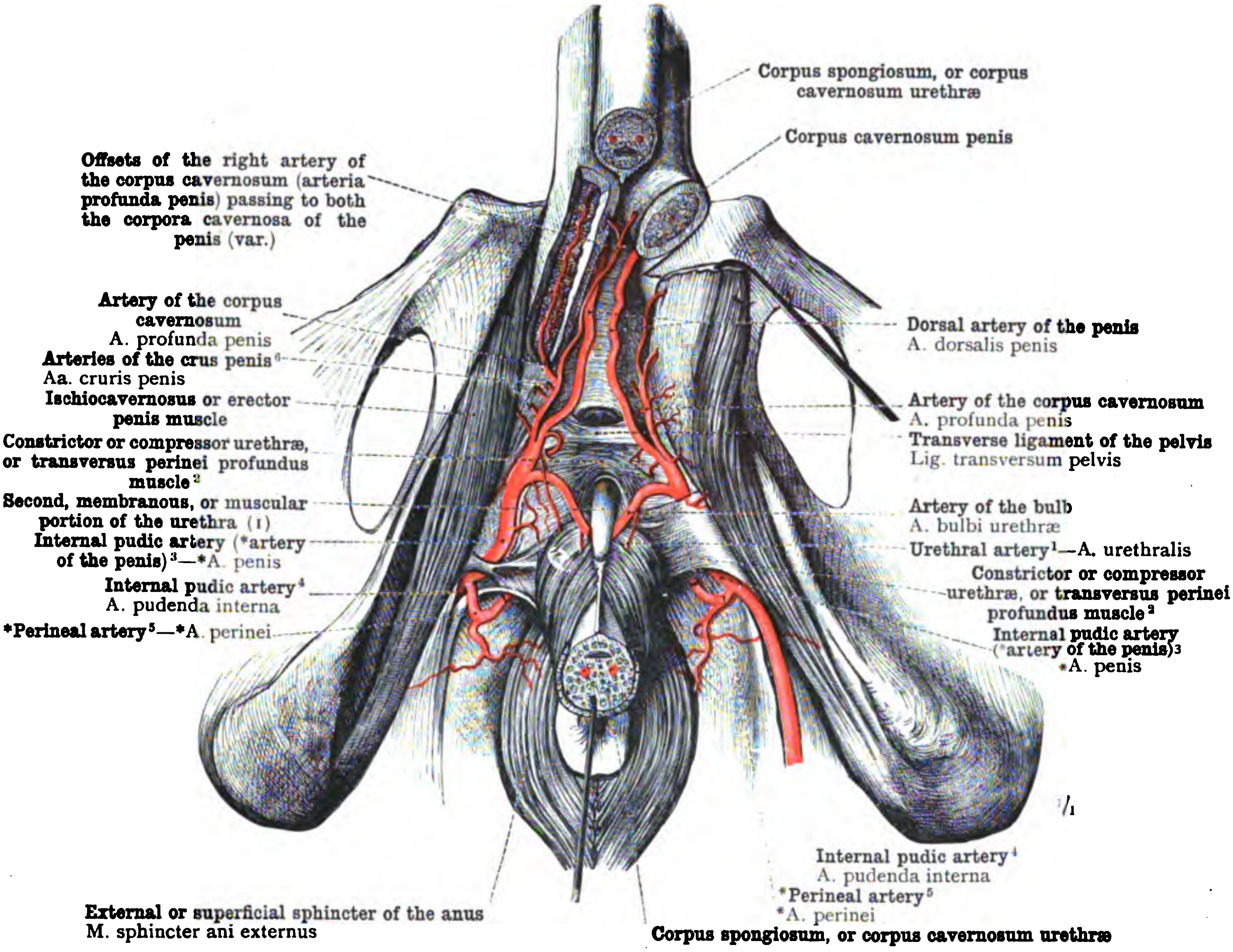

Bulbocavernosus or ejaculator urinæ muscle
*Posterior scrotal arteries[8]
Aa. scrotales posteriores
Ischiocavernosus or erector penis muscle
Internal pudic artery (*artery of the penis)[1]
*A. penis
*Perineal artery[2]
*A. perinei
*Urogenital diaphragm[3]
*Diaphragma urogenitale
(Superficial) transverse perineal muscle[4]
M. transversus perinei superficialis
Internal circumflex artery (of the thigh)
A. circumflexa femoris medialis
Great trochanter
Trochanter major
Internal pudic artery (*artery of the penis)[1]—*A. penis
Obturator fascia
Fascia obturatoria
Inferior hæmorrhoidal artery[5]
A. hæmorrhoidalis inferior
Internal pudic artery in Alcock's canal[6]
2/1
Obturator internus and gemelli muscles
Pyriformis muscle—M. piriformis
Comes nervi ischiadici artery
A. comitans n. ischiadici
Sciatic artery—A. glutæa inferior
Gluteus maximus muscle
M. glutæus maximus
External or superficial sphincter of the anus
M. sphincter ani externus
Internal pudic artery[7]
A. pudenda interna
Gluteus maximus muscle
M. glutæus maximus
Posterior or great sacrosciatic ligament
Lig. sacrotuberosum

[1] See Appendix, note 141.
[4] See note 1 to p. 527 in Part IV.
[7] See Appendix, note 139.
[2] See Appendix, note 149.
[5] See Appendix, note 150.
[8] See Appendix, note 138.
[3] See Appendix, note 142.
[6] See Appendix, note 151.

FIG. 991.—THE COURSE AND DISTRIBUTION OF THE INTERNAL PUDIC ARTERY (ARTERIA PUDENDA INTERNA) IN THE MALE PERINEAL REGION: THE INFERIOR OR EXTERNAL HÆMORRHOIDAL ARTERY (ANAL ARTERY, ACCORDING TO MACALISTER), ARTERIA HÆMORRHOIDALIS INFERIOR, AND THE *PERINEAL ARTERY (*i.e.*, TRANSVERSE PERINEAL AND SUPERFICIAL OR LONG PERINEAL ARTERIES—*see Appendix, notes* 147 *and* 149), ARTERIA PERINEI, WITH THE TERMINATION OF THE SUPERFICIAL OR LONG PERINEAL ARTERY BY ITS DIVISION INTO THE TWO POSTERIOR SCROTAL ARTERIES, ARTERIÆ SCROTALES POSTERIORES (*see Appendix, note* 138).

On the left side of the body, the course of the internal pudic artery (arteria pudenda interna) is shown from its emergence from the pelvis through the great sacrosciatic foramen until it penetrates the base of the triangular ligament of the urethra (in the author's terminology, up to its entrance into the *urogenital diaphragm—*see Appendix, note* 142); the gluteus maximus muscle has been partially divided by an incision passing upwards from its lower border and has been turned upwards, the great sacrosciatic ligament has been divided, Alcock's canal has been opened (*see Appendix, note* 151), and the (superficial) transverse muscle of the perineum has been entirely removed.

The Arteries of the Male Perineal Region.


Corpus spongiosum, or corpus cavernosum urethræ
Corpus cavernosum penis
Offsets of the right artery of the corpus cavernosum (arteria profunda penis) passing to both the corpora cavernosa of the penis (var.)
Artery of the corpus cavernosum
A. profunda penis
Arteries of the crus penis[6]
Aa. cruris penis
Ischiocavernosus or erector penis muscle
Constrictor or compressor urethræ, or transversus perinei profundus muscle[2]
Second, membranous, or muscular portion of the urethra (1)
Internal pudic artery (*artery of the penis)[3]—*A. penis
Internal pudic artery[4]
A. pudenda interna
*Perineal artery[5]—*A. perinei
Dorsal artery of the penis
A. dorsalis penis
Artery of the corpus cavernosum
A. profunda penis
Transverse ligament of the pelvis
Lig. transversum pelvis
Artery of the bulb
A. bulbi urethræ
Urethral artery[1]—A. urethralis
Constrictor or compressor urethræ, or transversus perinei profundus muscle[2]
Internal pudic artery (*artery of the penis)[3]
*A. penis
¹/₁
Internal pudic artery[4]
A. pudenda interna
*Perineal artery[5]
*A. perinei
External or superficial sphincter of the anus
M. sphincter ani externus
Corpus spongiosum, or corpus cavernosum urethræ

(1) Pars membranacea urethræ

FIG. 992.—THE TERMINAL BIFURCATION OF THE INTERNAL PUDIC ARTERY (*ARTERY OF THE PENIS, ACCORDING TO TOLDT—*see Appendix, note* [141]) INTO THE ARTERY OF THE CORPUS CAVERNOSUM (ARTERIA PROFUNDA PENIS) AND THE DORSAL ARTERY OF THE PENIS (ARTERIA DORSALIS PENIS). PRIOR TO THE BIFURCATION, THE FOLLOWING DEEP BRANCHES ARE SUPPLIED: ARTERIA BULBI URETHRÆ, THE ARTERY OF THE BULB; ARTERIA URETHRALIS, THE URETHRAL ARTERY; ARTERIÆ CRURIS PENIS, THE ARTERIES OF THE CRUS PENIS.

On the left side of the body, the superficial layer of the obturator fascia where it covers the internal pudic artery in the ischiorectal fossa has been removed throughout the whole length of Alcock's canal (*see Appendix, note* [145]), so that the artery is exposed up to its disappearance between the layers of the constrictor or compressor urethræ or transversus perinei profundus muscle; on the right side of the body, by the removal of the superficial fibres of that muscle, the artery is exposed in the anterior half of the perineum (called by the author in this part of its course the *artery of the penis, *arteria penis—*see Appendix, note* [141]). The corpus spongiosum, or corpus cavernosum urethræ, has been divided transversely in front of the pubic symphysis, the bulb of the urethra has been separated from the *urogenital diaphragm (*see Appendix, note* [142]) and turned backwards, in order to show the artery of the bulb entering the dorsal (deep) surface of the bulb. The left crus of the penis has been divided transversely and drawn a little outwards, to display more fully the entrance of the branches of the artery of the corpus cavernosum. On the right side the corresponding artery has been traced for some distance within the substance of the corpus cavernosum. Before entering the corpus cavernosum this (right) artery gives an offset which bifurcates in the angle between the two corpora cavernosa, the two branches entering the right and the left corpus cavernosum, respectively.

The Arteries of the Male Perineal Region.

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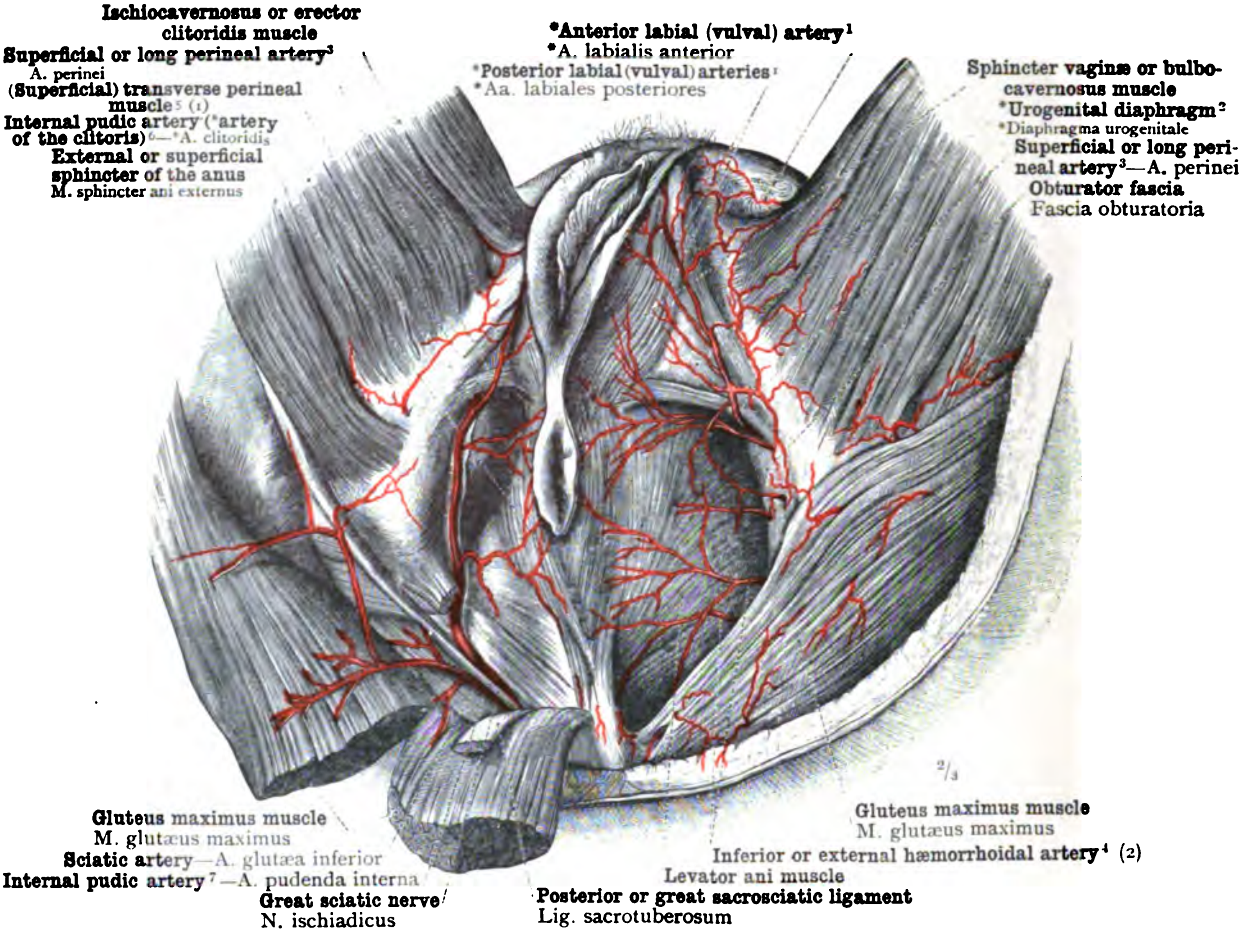
[1] See Appendix, note [152].
[2] See Appendix, note [153].
[3] See Appendix, note [141].
[4] See Appendix, note [139].
[5] See Appendix, notes [147] and [149].
[6] See Appendix, note [154].


Ischiocavernosus or erector clitoridis muscle
Superficial or long perineal artery[3]
A. perinei
(Superficial) transverse perineal muscle[5] (1)
Internal pudic artery (*artery of the clitoris)[6]—*A. clitoridis
External or superficial sphincter of the anus
M. sphincter ani externus
*Anterior labial (vulval) artery[1]
*A. labialis anterior
*Posterior labial (vulval) arteries[1]
*Aa. labiales posteriores
Sphincter vaginæ or bulbocavernosus muscle
*Urogenital diaphragm[2]
*Diaphragma urogenitale
Superficial or long perineal artery[3]—A. perinei
Obturator fascia
Fascia obturatoria
Gluteus maximus muscle
M. glutæus maximus
Sciatic artery—A. glutæa inferior
Internal pudic artery[7]—A. pudenda interna
Great sciatic nerve
N. ischiadicus
2/3
Gluteus maximus muscle
M. glutæus maximus
Inferior or external hæmorrhoidal artery[4] (2)
Levator ani muscle
Posterior or great sacrosciatic ligament
Lig. sacrotuberosum

(1) M. transversus perinei superficialis

(2) A. hæmorrhoidalis inferior

[1] See Appendix, note [138].
[4] Called by Macalister the *anal artery.*
[7] See Appendix, note [139].
[2] See Appendix, note [142].
[5] See note [1] to p. 527 in Part IV.
[3] See Appendix, note [155].
[6] See Appendix, note [156].

FIG. 993.—THE SUPERFICIAL BRANCHES OF THE INTERNAL PUDIC ARTERY, ARTERIA PUDENDA INTERNA, IN THE FEMALE PERINEAL REGION: THE INFERIOR OR EXTERNAL HÆMORRHOIDAL ARTERY (ANAL ARTERY, ACCORDING TO MACALISTER), ARTERIA HÆMORRHOIDALIS INFERIOR, AND THE *PERINEAL ARTERY (*i.e.*, TRANSVERSE PERINEAL ARTERY AND SUPERFICIAL OR LONG PERINEAL ARTERY—*see Appendix, notes* [147], [149], *and* [155]), ARTERIA PERINEI, WITH THE TERMINATION OF THE SUPERFICIAL OR LONG PERINEAL ARTERY BY ITS DIVISION INTO THE POSTERIOR LABIAL ARTERIES, ARTERIÆ LABIALES POSTERIORES (*see Appendix, note* [138]).

On the right side of the body the gluteus maximus muscle was partially divided by an incision passing upwards from its lower border, and was turned upwards; the posterior or great sacrosciatic ligament, ligamentum sacrotuberosum, was cut completely across, and turned upwards with the gluteus maximus muscle. By the removal of the superficial layer of the obturator fascia where it covers the internal pudic artery in Alcock's canal (*see Appendix, note* [145]), that canal was opened throughout, and the artery was exposed from its point of emergence from the pelvis to the point at which it perforates the base of the triangular ligament (or, in the author's terminology, to the point at which it enters the *urogenital diaphragm—*see Appendix, note* [142]).

The Arteries of the Female Perineal Region.

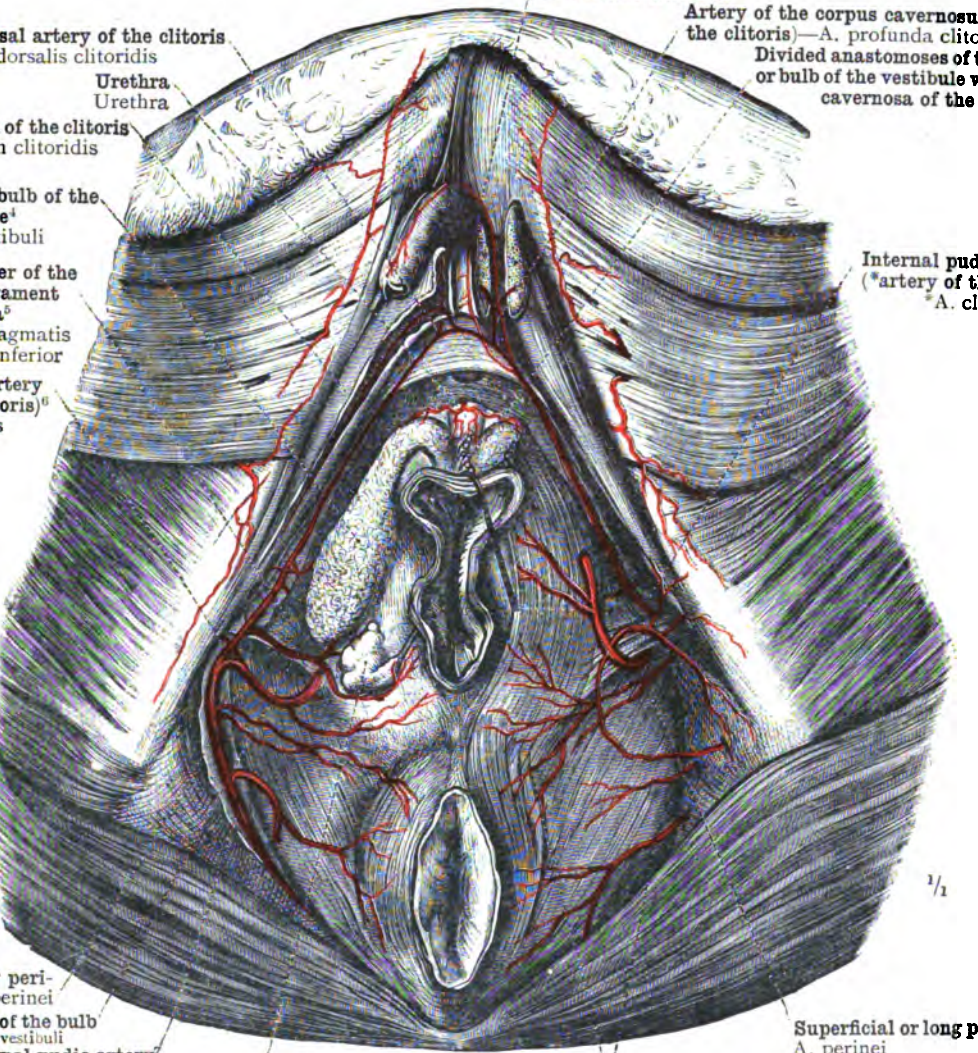

Dorsal artery of the clitoris
A. dorsalis clitoridis
Artery of the corpus cavernosum (of the clitoris)—A. profunda clitoridis
Divided anastomoses of the vaginal bulb or bulb of the vestibule with the corpora cavernosa of the clitoris
Dorsal artery of the clitoris
A. dorsalis clitoridis
Urethra
Urethra
Corpus cavernosum of the clitoris
Corpus cavernosum clitoridis
Vaginal bulb or bulb of the vestibule[4]
Bulbus vestibuli
Superficial layer of the triangular ligament of the urethra[5]
Fascia diaphragmatis urogenitalis inferior
Internal pudic artery (*artery of the clitoris)[6]
*A. clitoridis
Internal pudic artery (*artery of the clitoris)[1]
*A. clitoridis
1/1
Superficial or long perineal artery[2]—A. perinei
Artery of the bulb
A. bulbi vestibuli
Internal pudic artery[7]
A. pudenda interna
Bartholin's gland[8]—Glandula vestibularis major (Bartholini)
Superficial or long perineal artery[2]
A. perinei
Inferior or external hæmorrhoidal arteries[3]
Aa. hæmorrhoidales inferiores

Fig. 994.—The Deep Branches of the Internal Pudic Artery, Arteria Pudenda Externa in the Urogenital Region,[9] Regio Urogenitalis, of the Female Perineal Region. The Branches of the *Artery of the Clitoris, Arteria Clitoridis (*see Appendix, note* 156): the Artery of the Bulb, Arteria Bulbi Vestibulæ (Vaginæ); the Artery of the Corpus Cavernosum (of the Clitoris), Arteria Profunda Clitoridis; and the Dorsal Artery of the Clitoris, Arteria Dorsalis Clitoridis. The Dorsal Arteries of the Clitoris, Arteriæ Dorsales*Clitoridis, are connected with one another by an Anastomotic Arch situate on the Superficial Surface of the Inferior Pubic or Subpubic Ligament (Ligamentum Arcuatum Pubis).

In the preparation shown in Fig. 993, the labia majora and the labia minora or nymphæ were removed by a frontal section; on the right side of the body, the sphincter vaginæ or bulbocavernosus muscle and the (superficial) transverse muscle of the perineum (*see note* [1] *to p.* 527 *in Part IV.*) were removed, the anastomoses between the vaginal bulb or bulb of the vestibule and the clitoris were divided, and the passage of the urethra through the *urogenital diaphragm (*see Appendix, note* 142) was displayed by drawing the vagina backwards. The right corpus cavernosum of the clitoris was divided by a longitudinal section commencing at the point of entry of the artery of that body (arteria profunda clitoridis), and this artery was traced for some distance within its substance. The left corpus cavernosum was divided transversely at the point of entry of its artery (arteria profunda clitoridis), and by separating the segments of the crus the course of the dorsal artery of the clitoris, arteria dorsalis clitoridis, to its destination was exposed.

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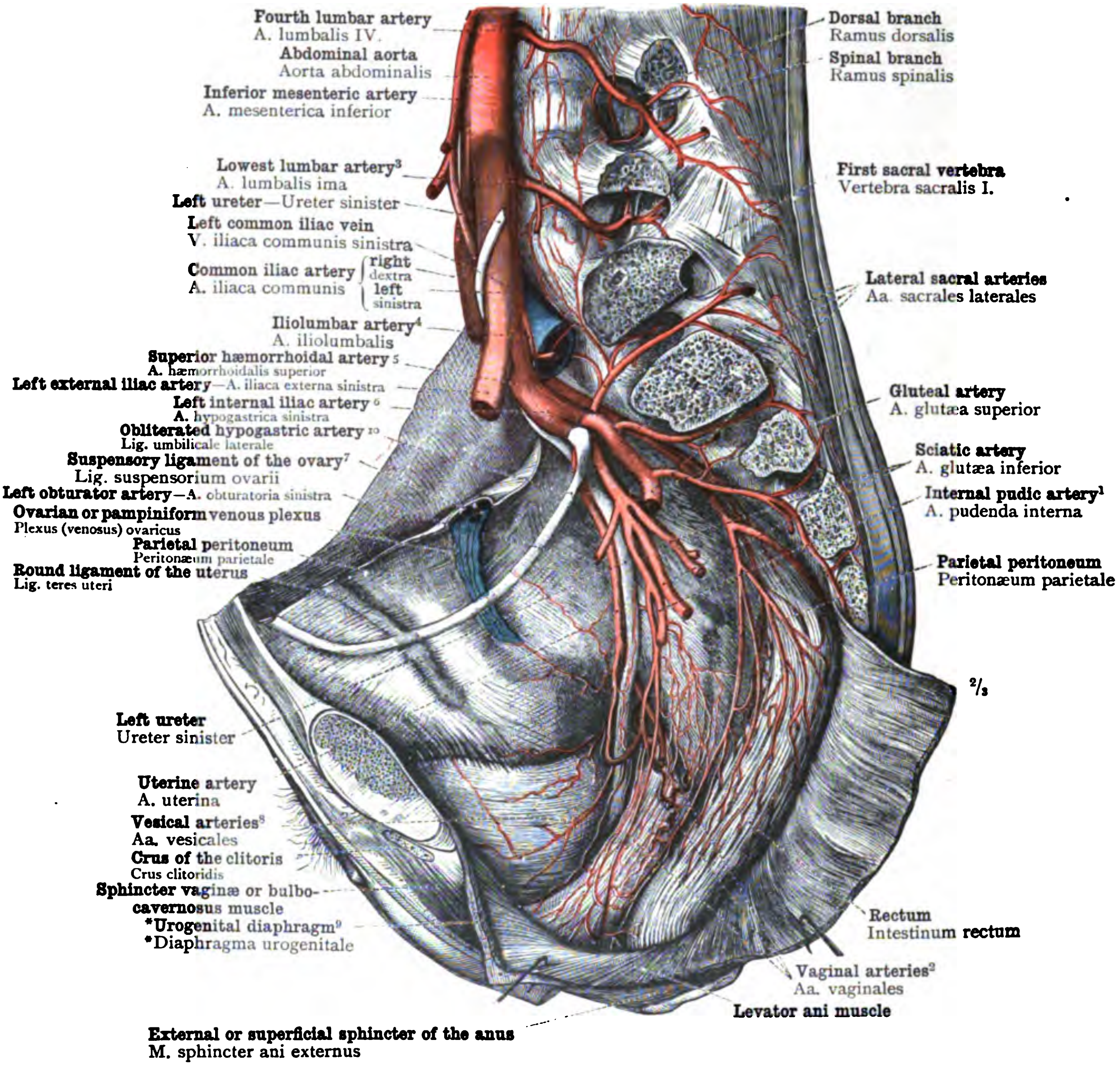
[1] See Appendix, note 156.
[2] See Appendix, note 157.
[3] See Appendix, note 158.
[4] See Appendix, note 159.
[5] See Appendix to Part IV., note 99.
[6] See Appendix, note 156.
[7] See Appendix, note 139.
[8] Known also as *Duverney's gland*, or the *suburethral gland*. (See Appendix to Part IV., note 66.)—Tr.
[9] Generally known in England as the *anterior half of the perineal space*.—Tr.

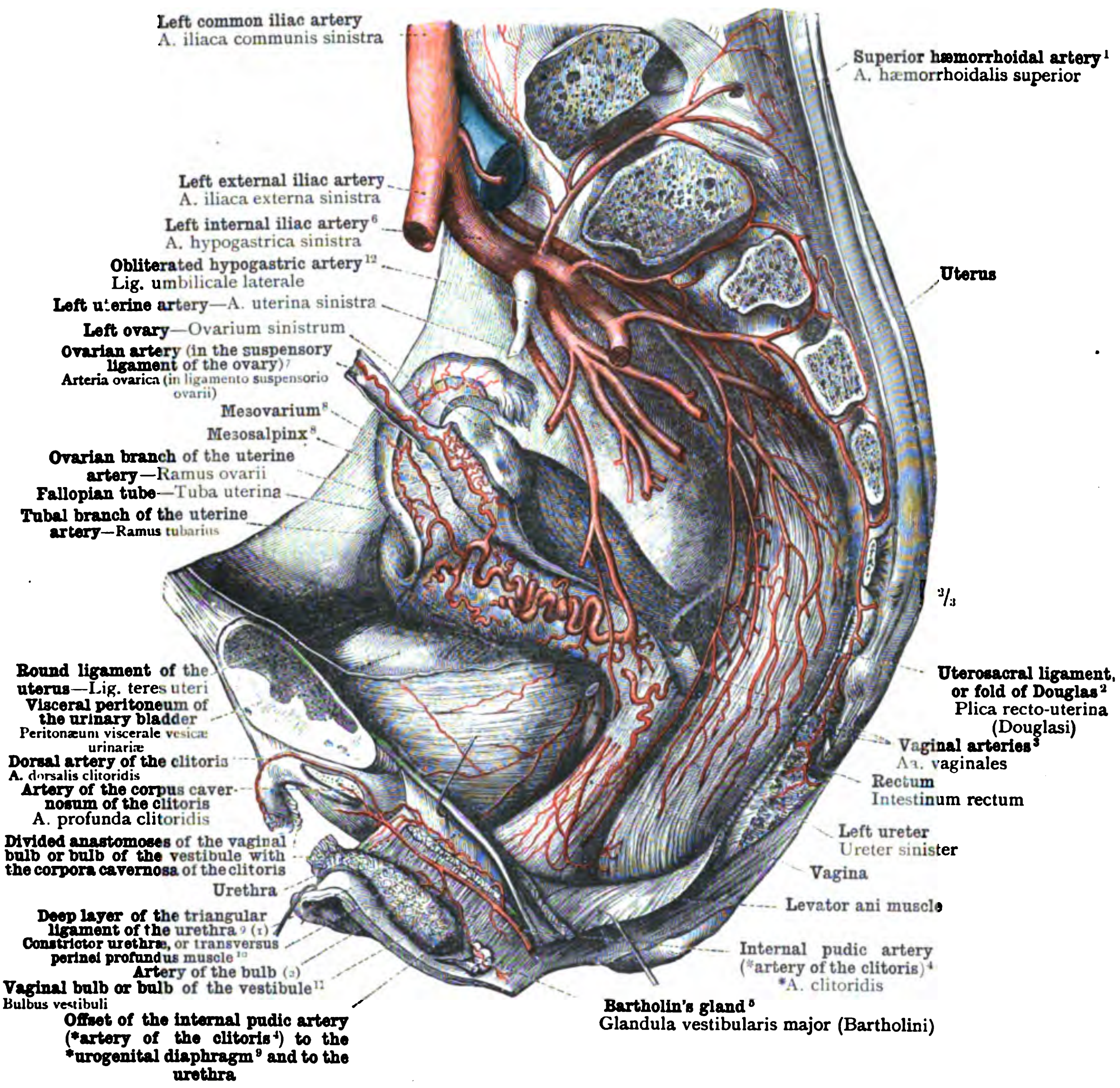


[1] See Appendix, note 139.
[2] See Appendix, note 160.
[3] See Appendix, note 126.
[4] See Appendix, note 161.
[5] Called by Macalister the *superior rectal artery.*
[6] See Appendix, note 120.
[7] Called also the *infundibulopelvic* or *ovariopelvic fold* or *ligament.*
[8] See Appendix, note 162.
[9] See Appendix, note 142.
[10] Or **external umbilical ligament*—see Appendix, note 148.

FIG. 995.—THE LEFT INTERNAL ILIAC ARTERY, ARTERIA HYPOGASTRICA (*see Appendix, note* 120), AND ITS VISCERAL BRANCHES, RAMI VISCERALES, SEEN IN THE SUBPERITONEAL SPACE OF A FEMALE PELVIS: THE LOWEST OFFSETS OF THE SUPERIOR HÆMORRHOIDAL OR SUPERIOR RECTAL ARTERY, ARTERIA HÆMORRHOIDALIS SUPERIOR; THE UTERINE ARTERY, ARTERIA UTERINA, AS FAR AS ITS POINT OF ENTRANCE INTO THE BROAD LIGAMENT OF THE UTERUS (MESOMETRIUM); THE VAGINAL ARTERIES, ARTERIÆ VAGINALES (*see Appendix, note* 160); THE TERMINAL OFFSETS TO THE BLADDER, ARTERIÆ VESICALES (*see Appendix, note* 162), AND TO THE URETER. OF THE PARIETAL BRANCHES, RAMI PARIETALES, THE LATERAL SACRAL ARTERIES, ARTERIÆ SACRALES LATERALES, AND THE TWO LOWERMOST LUMBAR ARTERIES, ARTERIÆ LUMBALES, HAVE BEEN PRESERVED; THE SPINAL BRANCHES HAVE BEEN TRACED UP TO THEIR ENTRANCE INTO THE SPINAL CANAL.

The left lateral wall of the pelvis was removed by a section which in front passed close to the median plane, and behind, through the left row of sacral foramina; but the parietal peritoneal investment of this wall was preserved up to its reflection on to the urinary bladder, the vagina, and the rectum. The parts of these organs situate outside the peritoneum were laid bare, and the pelvic diaphragm (*see Appendix, note* 140) was turned downwards.

The Arteries of the Female Pelvic Viscera.


Left common iliac artery
A. iliaca communis sinistra
Left external iliac artery
A. iliaca externa sinistra
Left internal iliac artery[6]
A. hypogastrica sinistra
Obliterated hypogastric artery[12]
Lig. umbilicale laterale
Left uterine artery—A. uterina sinistra
Left ovary—Ovarium sinistrum
Ovarian artery (in the suspensory ligament of the ovary)[7]
Arteria ovarica (in ligamento suspensorio ovarii)
Mesovarium[8]
Mesosalpinx[8]
Ovarian branch of the uterine artery—Ramus ovarii
Fallopian tube—Tuba uterina
Tubal branch of the uterine artery—Ramus tubarius
Round ligament of the uterus—Lig. teres uteri
Visceral peritoneum of the urinary bladder
Peritonæum viscerale vesicæ urinariæ
Dorsal artery of the clitoris
A. dorsalis clitoridis
Artery of the corpus cavernosum of the clitoris
A. profunda clitoridis
Divided anastomoses of the vaginal bulb or bulb of the vestibule with the corpora cavernosa of the clitoris
Urethra
Deep layer of the triangular ligament of the urethra[9] (1)
Constrictor urethræ, or transversus perinei profundus muscle[10]
Artery of the bulb (2)
Vaginal bulb or bulb of the vestibule[11]
Bulbus vestibuli
Offset of the internal pudic artery (*artery of the clitoris[4]) to the *urogenital diaphragm[9] and to the urethra
Superior hæmorrhoidal artery[1]
A. hæmorrhoidalis superior
Uterus
2/3
Uterosacral ligament, or fold of Douglas[2]
Plica recto-uterina (Douglasi)
Vaginal arteries[3]
Aa. vaginales
Rectum
Intestinum rectum
Left ureter
Ureter sinister
Vagina
Levator ani muscle
Internal pudic artery (*artery of the clitoris)[4]
*A. clitoridis
Bartholin's gland[5]
Glandula vestibularis major (Bartholini)

(1) Fascia diaphragmatis urogenitalis superior

(2) A. bulbi vestibuli (vaginæ)

[1] Called by Macalister the *superior rectal artery*.

[2] Known also as the *recto-uterine fold* or *ligament*.

[3] See Appendix, note 160.

[4] See Appendix, note 156.

[5] Known also as *Duverney's gland*, or the *suburethral gland*. (See Appendix to Part IV., note 66.)

[6] See Appendix, note 120.

[7] The *suspensory ligament of the ovary* is known also as the *infundibulopelvic ligament* or *ovariopelvic fold* or *ligament*.—Tr.

[8] See Appendix to Part IV., note 82.

[9] See Appendix to Part IV., note 99.

[10] *M. Transversus Perinei Profundus.*—For an account of the nomenclature of this muscle see Appendix to Part IV., note 101.—Tr.

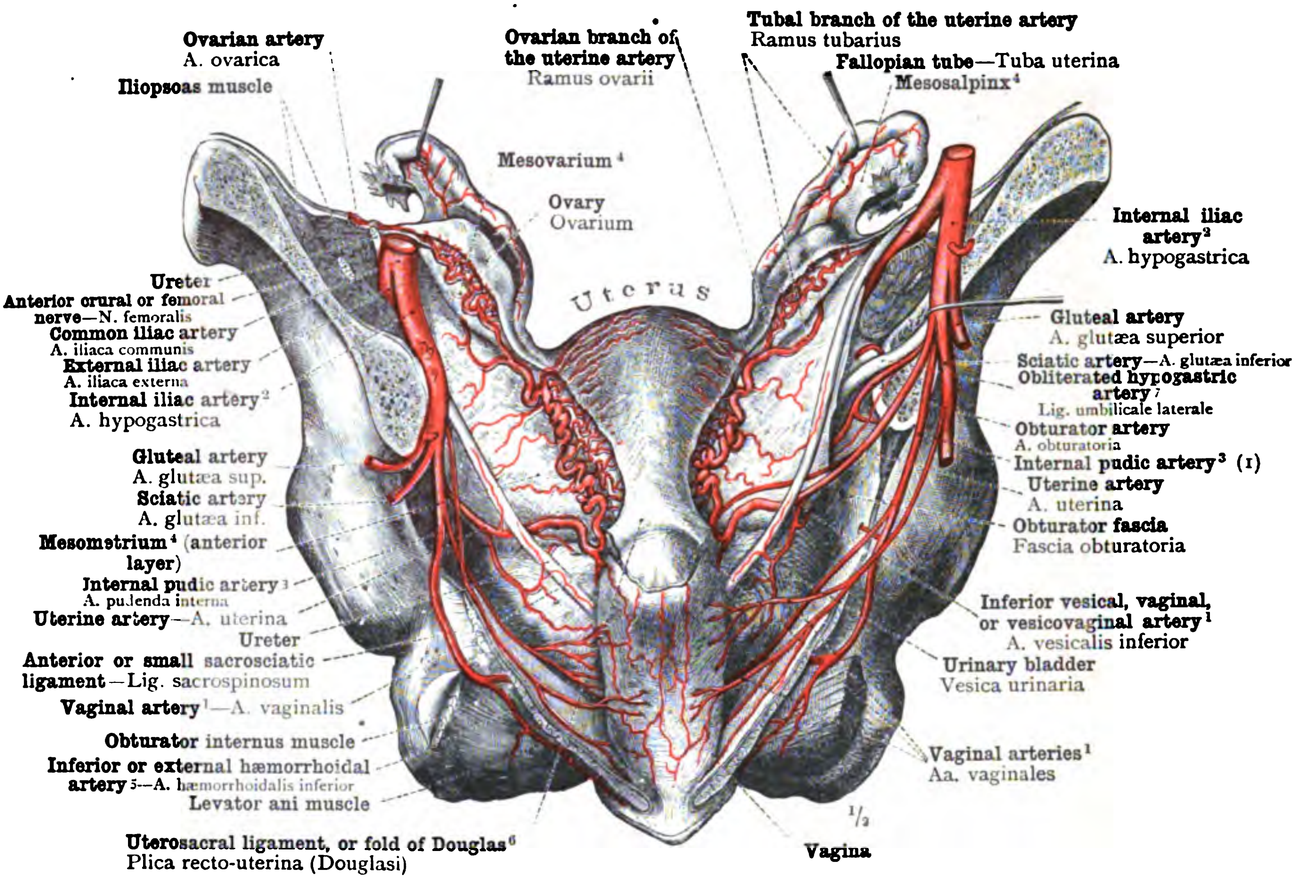
[11] *Bulbus Vestibuli.*—Regarding the nomenclature of this structure, see Appendix to Part IV., note 91—Tr.

[12] Or **external umbilical ligament*—see Appendix, note 148.

FIG. 996.—THE DISTRIBUTION OF THE LATERAL SACRAL ARTERIES, ARTERIÆ SACRALES LATERALES, THE SUPERIOR HÆMORRHOIDAL OR SUPERIOR RECTAL ARTERY, ARTERIA HÆMORRHOIDALIS SUPERIOR, THE UTERINE ARTERY, ARTERIA UTERINA, THE OVARIAN ARTERY, ARTERIA OVARICA, AND THE DISTAL PORTION OF THE INTERNAL PUDIC ARTERY, *ARTERIA CLITORIDIS (*see Appendix, note* 156).

In the preparation shown in Fig. 995, the parietal peritoneum was cut away along the line of its reflection on to the rectum and the urinary bladder, and the mesometrium (*i.e.*, the broad ligament of the uterus) was severed along its attachment to the uterus, the Fallopian tube with its mesentery (the mesosalpinx) and also the suspensory ligament of the ovary were turned inwards and upwards, while the mesovarium was turned upwards and backwards, the lower layer of the latter was removed, and the ovarian artery with its ovarian offsets and its anastomosis with the uterine artery was displayed. The deep layer of the triangular ligament of the urethra was detached from the deep transverse perineal muscle and was drawn upwards, in order to show the branch of the internal pudic artery running forwards on the superficial surface of this deep layer. From a transversely disposed arch formed by the anastomosis of this branch with the corresponding vessel of the opposite side, several small offsets arise, which run forwards (downwards) along the urethra. By the removal of the superficial layer of the triangular ligament of the urethra the internal pudic artery (arteria clitoridis—*see Appendix, note* 156) was exposed up to its terminal bifurcation.

The Arteries of the Female Pelvic Viscera.



(1) A. pudenda interna

[1] See Appendix, note 163.
[2] See Appendix, note 120.
[3] See Appendix, note 137.
[4] See Appendix to Part IV., note 82.
[5] Called by Macalister the *anal artery*.
[6] Known also as the *recto-uterine fold* or *ligament*.
[7] Or *external umbilical ligament*—see Appendix, note 148.

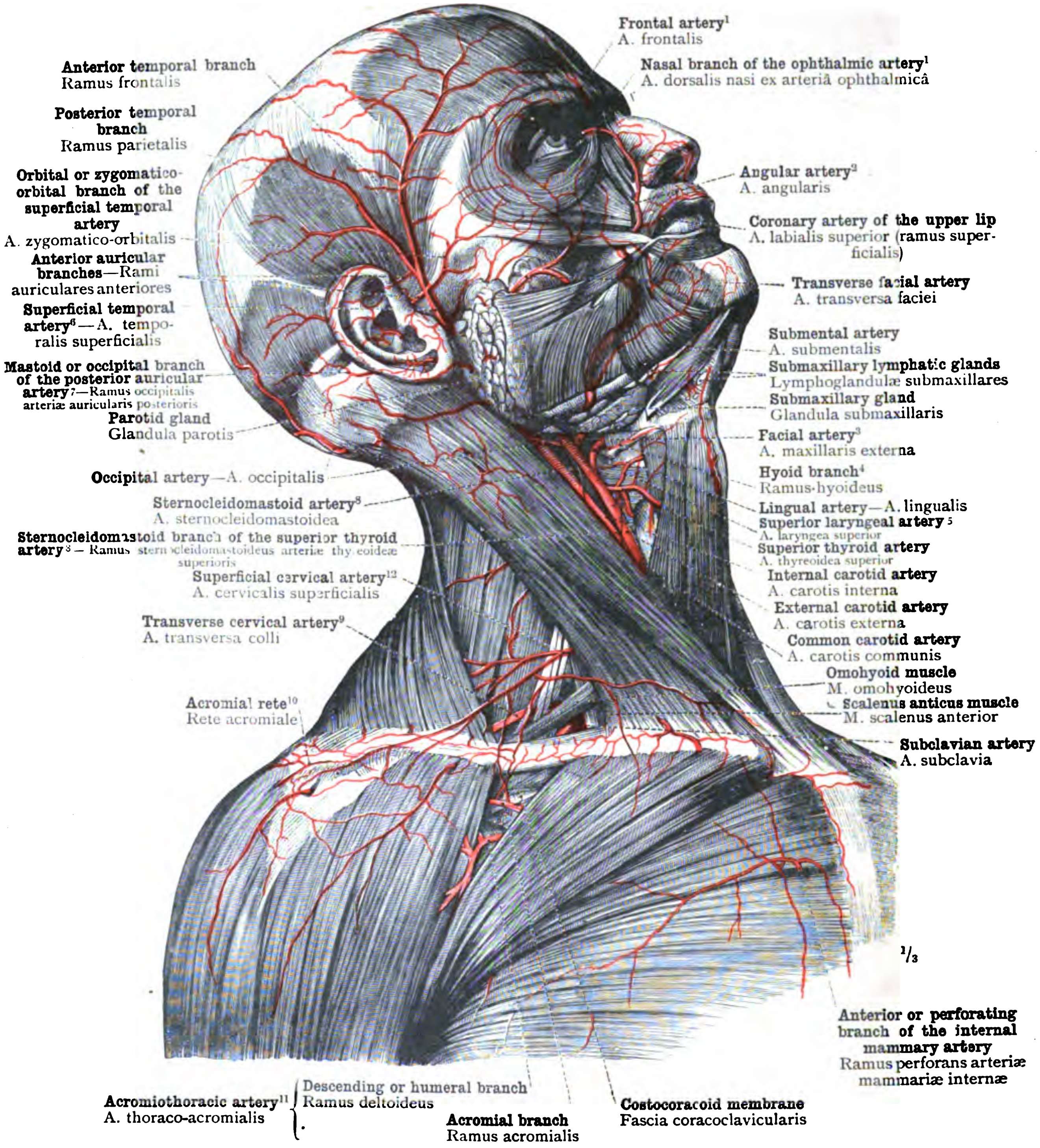
Fig. 997.—The Arteries of the Uterus, the Ovaries, the Fallopian Tubes, the Vagina, and the Urinary Bladder, seen from Behind: the Ovarian Artery, Arteria Ovarica (Arteria Spermatica Interna); the Uterine Artery, Arteria Uterina, with its Offsets to the Ovary (Ramus Ovarii), the Fallopian Tube (Ramus Tubarius), the Vagina Arteriæ Vaginales—*see Appendix, note* 163), and to the Bladder (Arteria Vesicalis Inferior)—*i.e.*, the Inferior Vesical, Vaginal, or Vesicovaginal Artery (in this Specimen arising from the Uterine Artery, instead of, as usually, arising separately from the Anterior Division of the Internal Iliac Artery—*see Appendix, note* 163); the Internal Pudic Artery, Arteria Pudenda Interna, and its Offsets to the Vagina (*see Appendix, note* 163). The Pelvic Portion of the Ureter, and its Relations to the Uterine Artery, the Cervix Uteri, the Vagina, and the Urinary Bladder.

By a frontal section passing on each side through the great sacrosciatic foramen, the posterior wall of the pelvis was removed, in order to display (after removing the rectum) the uterus and the vagina, and, in addition, the lateral parts of the bladder. The uterus and the vagina were drawn upwards, the ovaries upwards and forwards; the lower layer of the mesovarium and the hinder layer of the mesometrium were removed, and the ureters, thus exposed, were preserved as nearly as possible in their natural position. The right internal iliac artery was drawn outwards and backwards, to display more fully the origin of its branches and that of the obliterated hypogastric artery (*see note* 7 *above*). The branches of the posterior division of the artery have been cut away near their origin, and the internal pudic artery has on both sides been traced as far as its passage through the small sacrosciatic foramen.

The Arteries of the Female Pelvic Viscera.

ARTERIÆ COLLI ET CAPITIS

THE ARTERIES OF THE HEAD AND NECK

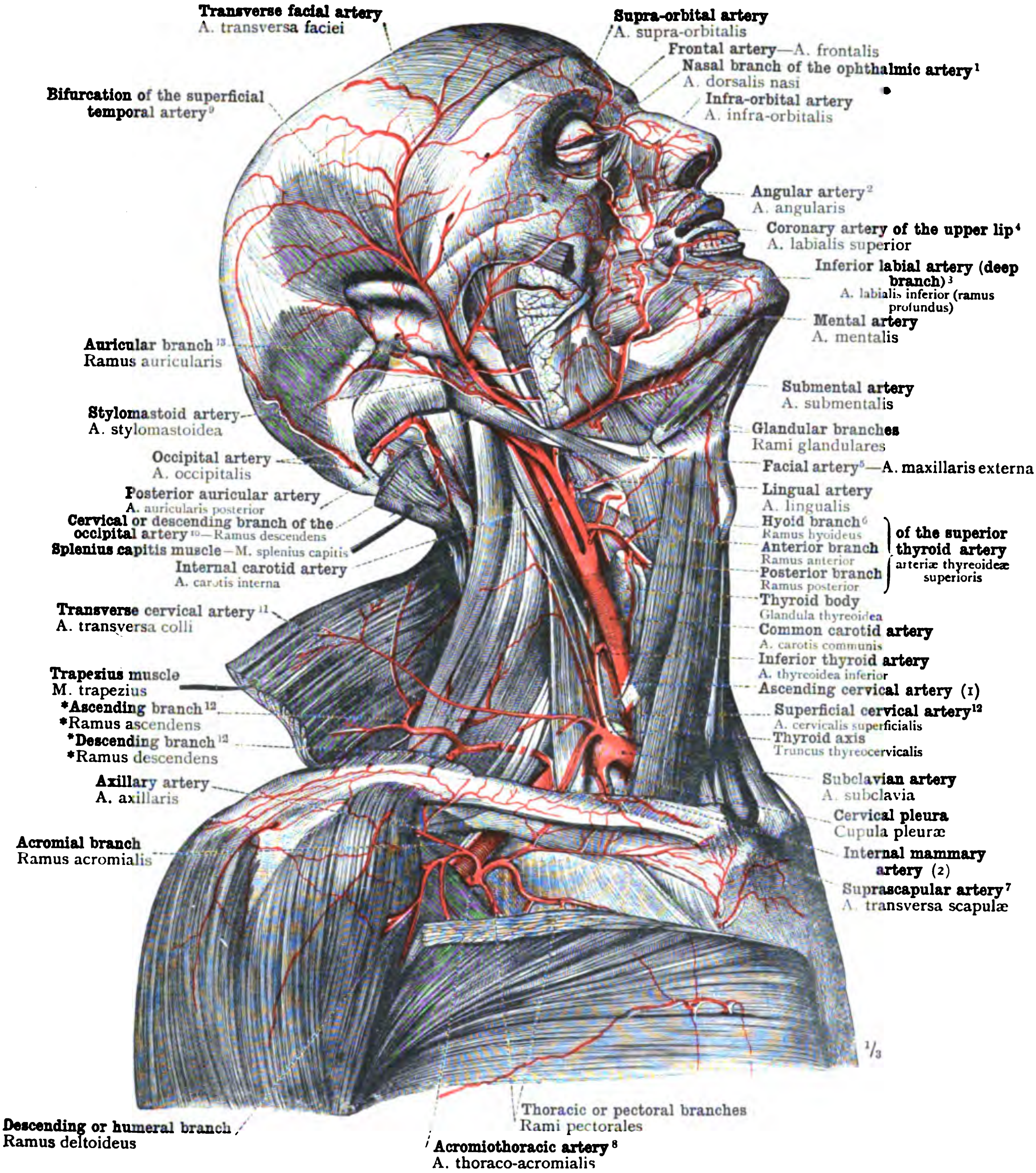

Frontal artery[1]
A. frontalis
Nasal branch of the ophthalmic artery[1]
A. dorsalis nasi ex arteriâ ophthalmicâ
Anterior temporal branch
Ramus frontalis
Posterior temporal branch
Ramus parietalis
Orbital or zygomatico-orbital branch of the superficial temporal artery
A. zygomatico-orbitalis
Anterior auricular branches—Rami auriculares anteriores
Superficial temporal artery[6]—A. temporalis superficialis
Mastoid or occipital branch of the posterior auricular artery[7]—Ramus occipitalis arteriæ auricularis posterioris
Parotid gland
Glandula parotis
Occipital artery—A. occipitalis
Sternocleidomastoid artery[8]
A. sternocleidomastoidea
Sternocleidomastoid branch of the superior thyroid artery[3]—Ramus sternocleidomastoideus arteriæ thyreoideæ superioris
Superficial cervical artery[12]
A. cervicalis superficialis
Transverse cervical artery[9]
A. transversa colli
Acromial rete[10]
Rete acromiale
Angular artery[2]
A. angularis
Coronary artery of the upper lip
A. labialis superior (ramus superficialis)
Transverse facial artery
A. transversa faciei
Submental artery
A. submentalis
Submaxillary lymphatic glands
Lymphoglandulæ submaxillares
Submaxillary gland
Glandula submaxillaris
Facial artery[3]
A. maxillaris externa
Hyoid branch[4]
Ramus hyoideus
Lingual artery—A. lingualis
Superior laryngeal artery[5]
A. laryngea superior
Superior thyroid artery
A. thyreoidea superior
Internal carotid artery
A. carotis interna
External carotid artery
A. carotis externa
Common carotid artery
A. carotis communis
Omohyoid muscle
M. omohyoideus
Scalenus anticus muscle
M. scalenus anterior
Subclavian artery
A. subclavia
1/3
Anterior or perforating branch of the internal mammary artery
Ramus perforans arteriæ mammariæ internæ
Acromiothoracic artery[11]
A. thoraco-acromialis
Descending or humeral branch
Ramus deltoideus
Acromial branch
Ramus acromialis
Costocoracoid membrane
Fascia coracoclavicularis

[1] See Appendix, note 164.
[2] See Appendix, note 165.
[3] See Appendix, note 166.
[4] See Appendix, note 167.
[5] Or *laryngeal branch* of the *superior thyroid artery*.
[6] See Appendix, note 168.
[7] Called by Macalister the *posterior terminal branch* of the *posterior auricular artery*.
[8] See Appendix, note 169.
[9] Or *posterior scapular artery* (Macalister). See Appendix, note 172.—Tr.
[10] See Appendix, note 170.
[11] Called by Macalister the *thoracico-acromial artery*.
[12] See Appendix, note 172.

FIG. 998.—SUPERFICIAL ARTERIES OF THE HEAD AND NECK, AND OF THE UPPER PART OF THE PECTORAL REGION AND THE SHOULDER; SEEN FROM THE RIGHT SIDE.

Over the anterior part of the parotid gland, the parotideomasseteric fascia has been left intact. The lower ends of the levator labii superioris alæque nasi, levator labii superioris proprius, and zygomaticus minor muscles have been removed, to display the facial artery and the origin of the coronary artery of the upper lip.

The Superficial Branches of the External Carotid, Subclavian, and Axillary Arteries.



(1) A. cervicalis ascendens (2) A. mammaria interna

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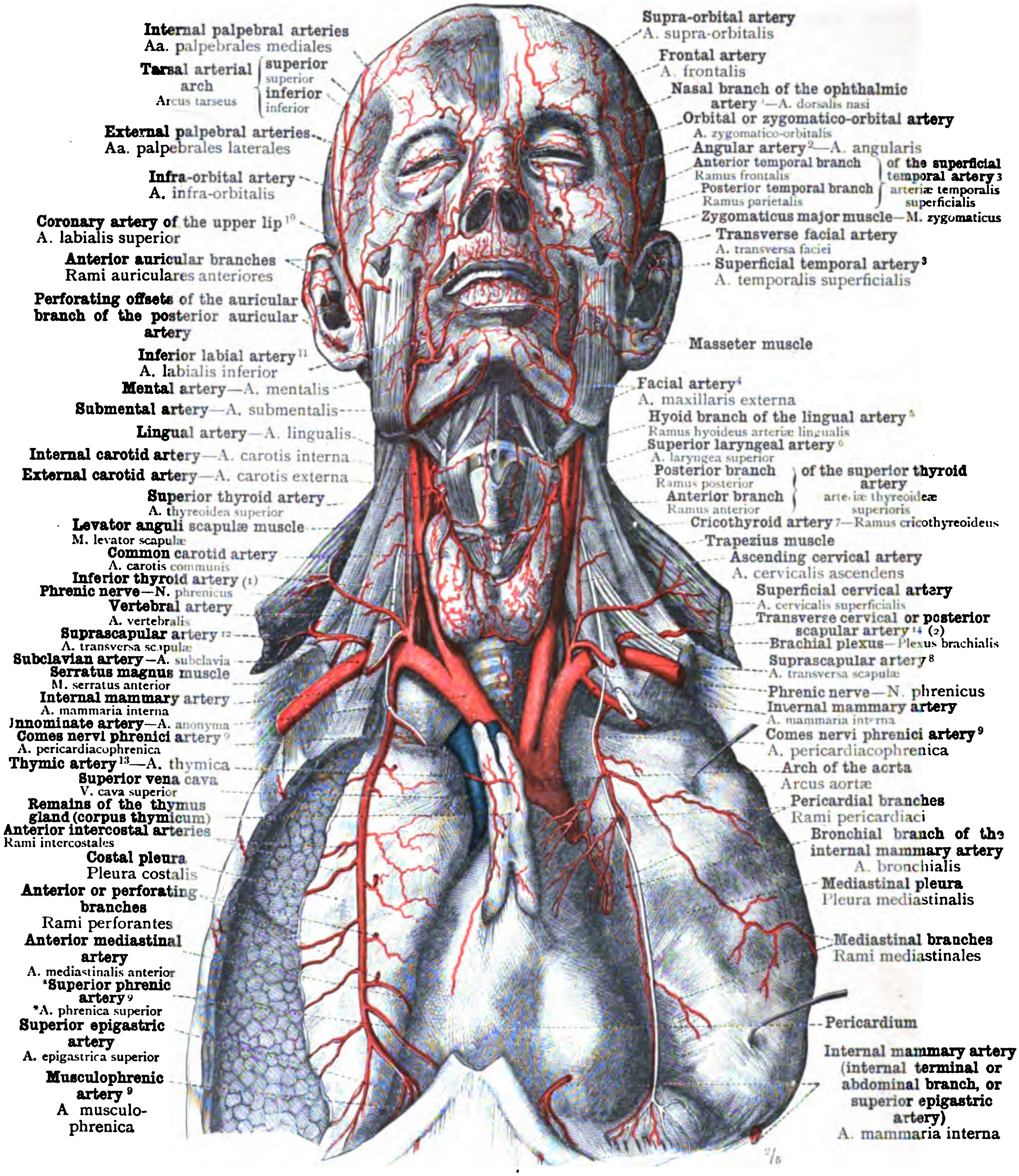
[1] See Appendix, note 164.
[2] See Appendix, note 165.
[3] See Appendix, note 171.
[4] Called by Macalister the *superior coronary artery.*
[5] See Appendix, note 166.
[6] Called by Macalister the *infrahyoidean artery.*
[7] Known also as the *transverse scapular* or *transverse humeral artery.*
[8] Called by Macalister the *thoracico-acromial artery.*
[9] See Appendix, note 168.
[10] Known also as the *ramus cervicalis princeps,* or *arteria princeps cervicis.*
[11] Or *posterior scapular artery* (Macalister).
[12] See Appendix, note 172.
[13] Called by Macalister the *anterior terminal* branch of the *posterior auricular artery.*

FIG. 999.—IN THE PREPARATION SHOWN IN FIG. 998, THE SUPERFICIAL MUSCLES OF THE FACE, THE HINDER PART OF THE PAROTID GLAND, THE SUBMAXILLARY GLAND, THE STERNOCLEIDOMASTOID MUSCLE, THE INFERIOR (POSTERIOR) BELLY OF THE OMOHYOID MUSCLE, THE UPPER PART OF THE CLAVICULAR PORTION OF THE PECTORALIS MAJOR MUSCLE, AND THE DEEP LAYER OF THE PECTORAL FASCIA, WERE REMOVED. THE ORBICULARIS ORIS MUSCLE WAS INCISED ABOVE AND BELOW THE APERTURE OF THE MOUTH (RIMA ORIS) AND PARALLEL WITH THAT APERTURE, THE INCISION PENETRATING TO THE LABIAL GLANDS, IN ORDER TO EXPOSE THE CORONARY ARTERIES OF THE LIPS.

The Deep Branches of the External Carotid, Subclavian, and Axillary Arteries.

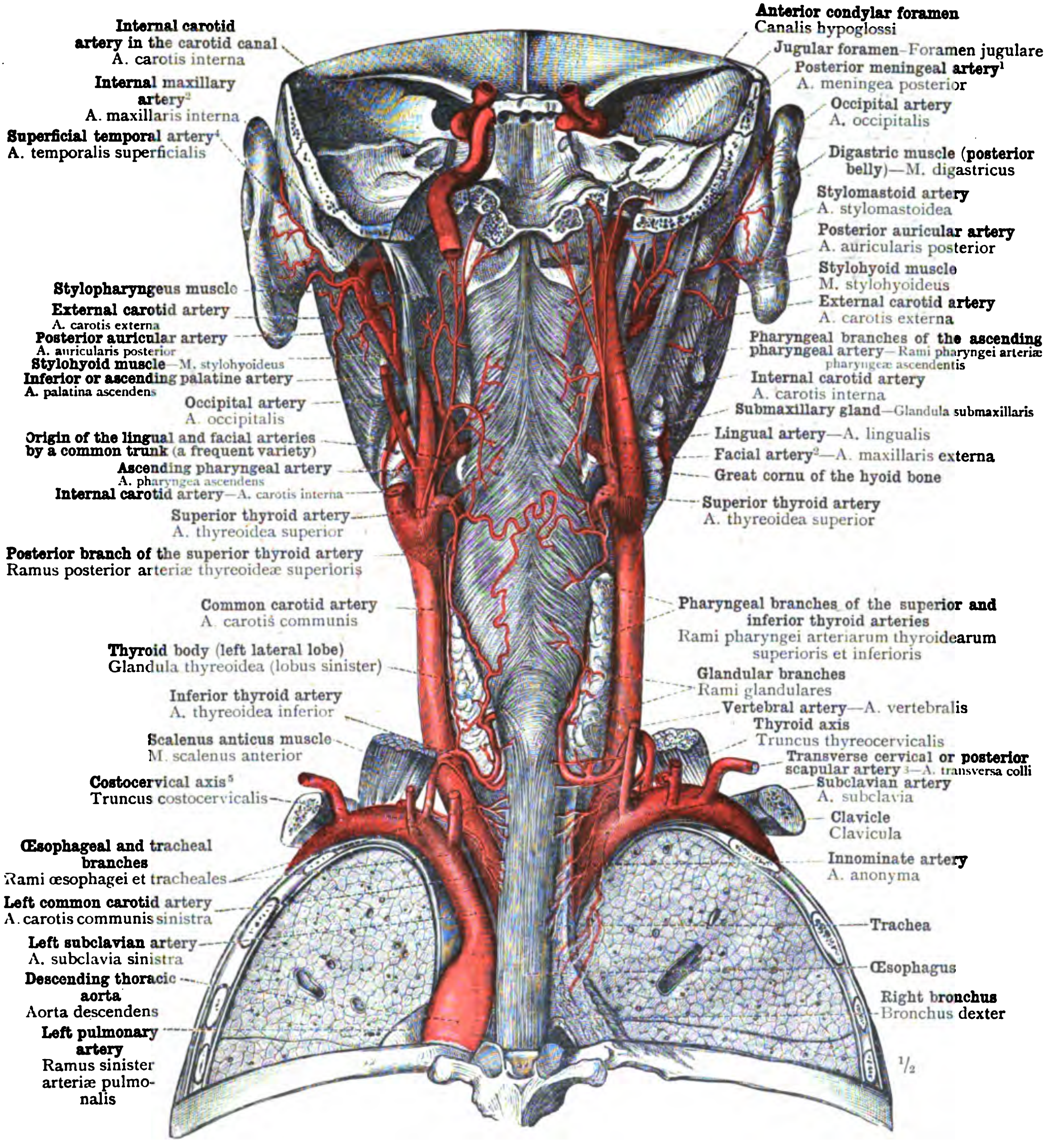

Internal palpebral arteries
Aa. palpebrales mediales
Tarsal arterial arch
Arcus tarseus
superior
superior
inferior
inferior
External palpebral arteries
Aa. palpebrales laterales
Infra-orbital artery
A. infra-orbitalis
Coronary artery of the upper lip[10]
A. labialis superior
Anterior auricular branches
Rami auriculares anteriores
Perforating offsets of the auricular branch of the posterior auricular artery
Inferior labial artery[11]
A. labialis inferior
Mental artery—A. mentalis
Submental artery—A. submentalis
Lingual artery—A. lingualis
Internal carotid artery—A. carotis interna
External carotid artery—A. carotis externa
Superior thyroid artery
A. thyreoidea superior
Levator anguli scapulæ muscle
M. levator scapulæ
Common carotid artery
A. carotis communis
Inferior thyroid artery (1)
Phrenic nerve—N. phrenicus
Vertebral artery
A. vertebralis
Suprascapular artery[12]
A. transversa scapulæ
Subclavian artery—A. subclavia
Serratus magnus muscle
M. serratus anterior
Internal mammary artery
A. mammaria interna
Innominate artery—A. anonyma
Comes nervi phrenici artery[9]
A. pericardiacophrenica
Thymic artery[13]—A. thymica
Superior vena cava
V. cava superior
Remains of the thymus gland (corpus thymicum)
Anterior intercostal arteries
Rami intercostales
Costal pleura
Pleura costalis
Anterior or perforating branches
Rami perforantes
Anterior mediastinal artery
A. mediastinalis anterior
*Superior phrenic artery[9]
*A. phrenica superior
Superior epigastric artery
A. epigastrica superior
Musculophrenic artery[9]
A musculo-phrenica
Supra-orbital artery
A. supra-orbitalis
Frontal artery
A. frontalis
Nasal branch of the ophthalmic artery[1]—A. dorsalis nasi
Orbital or zygomatico-orbital artery
A. zygomatico-orbitalis
Angular artery[2]—A. angularis
Anterior temporal branch
Ramus frontalis
Posterior temporal branch
Ramus parietalis
of the superficial temporal artery[3]
arteriæ temporalis superficialis
Zygomaticus major muscle—M. zygomaticus
Transverse facial artery
A. transversa faciei
Superficial temporal artery[3]
A. temporalis superficialis
Masseter muscle
Facial artery[4]
A. maxillaris externa
Hyoid branch of the lingual artery[5]
Ramus hyoideus arteriæ lingualis
Superior laryngeal artery[6]
A. laryngea superior
Posterior branch
Ramus posterior
Anterior branch
Ramus anterior
of the superior thyroid artery
arteriæ thyreoideæ superioris
Cricothyroid artery[7]—Ramus cricothyreoideus
Trapezius muscle
Ascending cervical artery
A. cervicalis ascendens
Superficial cervical artery
A. cervicalis superficialis
Transverse cervical or posterior scapular artery[14] (2)
Brachial plexus—Plexus brachialis
Suprascapular artery[8]
A. transversa scapulæ
Phrenic nerve—N. phrenicus
Internal mammary artery
A. mammaria interna
Comes nervi phrenici artery[9]
A. pericardiacophrenica
Arch of the aorta
Arcus aortæ
Pericardial branches
Rami pericardiaci
Bronchial branch of the internal mammary artery
A. bronchialis
Mediastinal pleura
Pleura mediastinalis
Mediastinal branches
Rami mediastinales
Pericardium
Internal mammary artery (internal terminal or abdominal branch, or superior epigastric artery)
A. mammaria interna
2/5

(1) A. thyreoidea inferior (2) A. transversa colli

[1] See Appendix, note 164.
[2] See Appendix, note 165.
[3] See Appendix, note 168.
[4] See Appendix, note 166.
[5] Called by Macalister the *suprahyoidean* artery. See Appendix, note 167.
[6] Or *laryngeal branch* of the *superior thyroid artery.*
[7] See Appendix, note 173.
[8] Known also as the *transverse scapular* or *transverse humeral artery.*
[9] See Appendix, note 174.
[10] Called by Macalister the *superior coronary artery.*
[11] See Appendix, note 171.
[12] Called also the *transverse scapular* or *transverse humeral artery.*
[13] See Appendix, note 175.
[14] See Appendix, note 172.

FIG. 1000.—ON THE RIGHT SIDE OF THE BODY, THE COSTAL PLEURA AND THE LUNG HAVE BEEN PUSHED SOMEWHAT BACKWARDS; AND BETWEEN THE INTERNAL MAMMARY ARTERY AND THE ANTERIOR CUT SURFACES OF THE RIBS THE COSTAL PLEURA HAS BEEN REMOVED, EXPOSING THE SURFACE OF THE LUNG. THE LEFT LAYER OF THE MEDIASTINUM HAS BEEN SEPARATED FROM ITS ATTACHMENTS AS FAR BACK AS THE ROOT OF THE LUNG, AND HAS BEEN DRAWN OUTWARDS WITH THAT ORGAN.

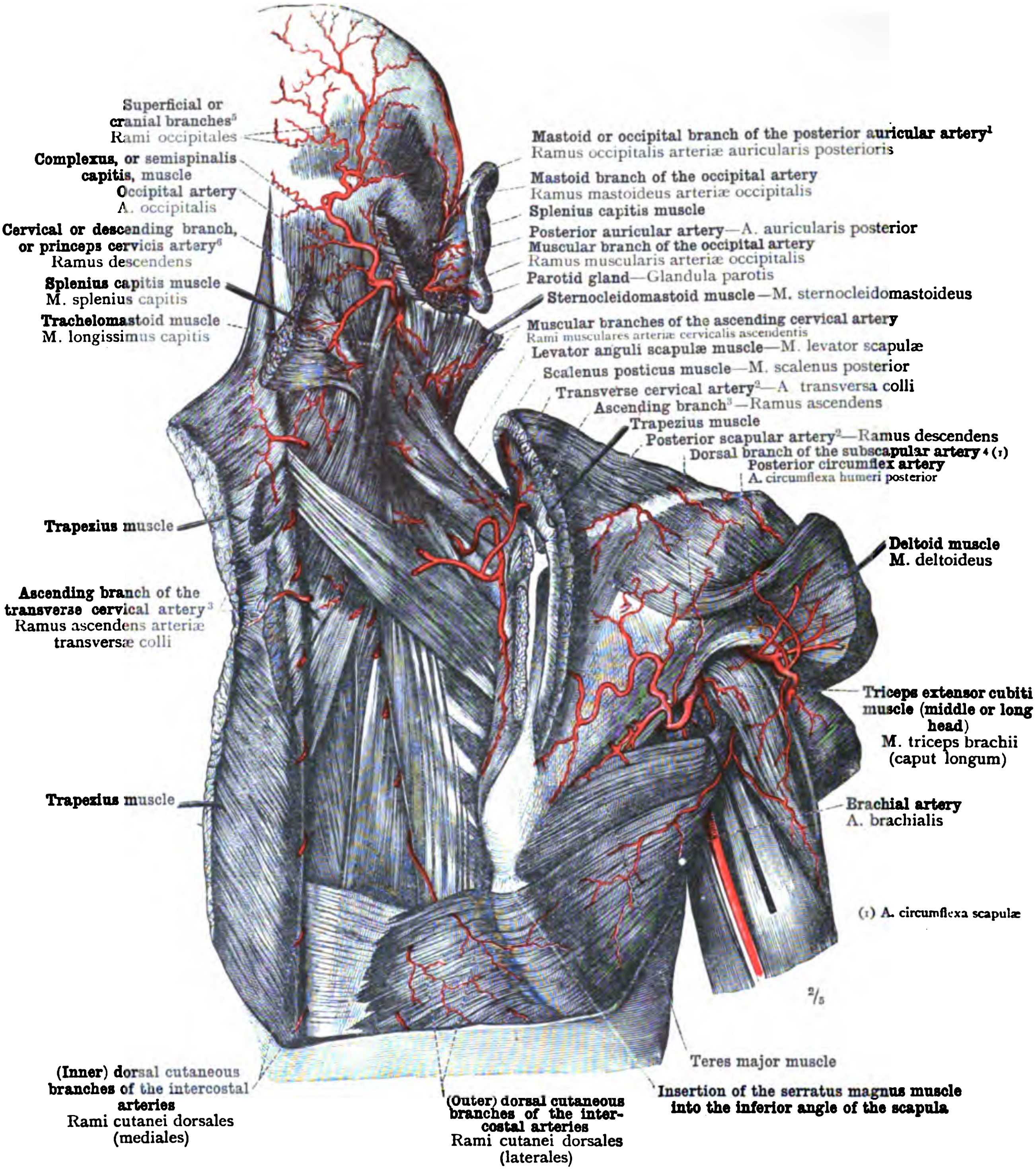
The Distribution of the Branches of the Arch of the Aorta in the Head and Neck, and the Distribution of the Internal Mammary Artery.


Internal carotid artery in the carotid canal
A. carotis interna
Internal maxillary artery[2]
A. maxillaris interna
Superficial temporal artery[4]
A. temporalis superficialis
Stylopharyngeus muscle
External carotid artery
A. carotis externa
Posterior auricular artery
A. auricularis posterior
Stylohyoid muscle—M. stylohyoideus
Inferior or ascending palatine artery
A. palatina ascendens
Occipital artery
A. occipitalis
Origin of the lingual and facial arteries by a common trunk (a frequent variety)
Ascending pharyngeal artery
A. pharyngea ascendens
Internal carotid artery—A. carotis interna
Superior thyroid artery
A. thyreoidea superior
Posterior branch of the superior thyroid artery
Ramus posterior arteriæ thyreoideæ superioris
Common carotid artery
A. carotis communis
Thyroid body (left lateral lobe)
Glandula thyreoidea (lobus sinister)
Inferior thyroid artery
A. thyreoidea inferior
Scalenus anticus muscle
M. scalenus anterior
Costocervical axis[5]
Truncus costocervicalis
Œsophageal and tracheal branches
Rami œsophagei et tracheales
Left common carotid artery
A. carotis communis sinistra
Left subclavian artery
A. subclavia sinistra
Descending thoracic aorta
Aorta descendens
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Anterior condylar foramen
Canalis hypoglossi
Jugular foramen—Foramen jugulare
Posterior meningeal artery[1]
A. meningea posterior
Occipital artery
A. occipitalis
Digastric muscle (posterior belly)—M. digastricus
Stylomastoid artery
A. stylomastoidea
Posterior auricular artery
A. auricularis posterior
Stylohyoid muscle
M. stylohyoideus
External carotid artery
A. carotis externa
Pharyngeal branches of the ascending pharyngeal artery—Rami pharyngei arteriæ pharyngeæ ascendentis
Internal carotid artery
A. carotis interna
Submaxillary gland—Glandula submaxillaris
Lingual artery—A. lingualis
Facial artery[2]—A. maxillaris externa
Great cornu of the hyoid bone
Superior thyroid artery
A. thyreoidea superior
Pharyngeal branches of the superior and inferior thyroid arteries
Rami pharyngei arteriarum thyroidearum superioris et inferioris
Glandular branches
Rami glandulares
Vertebral artery—A. vertebralis
Thyroid axis
Truncus thyreocervicalis
Transverse cervical or posterior scapular artery[3]—A. transversa colli
Subclavian artery
A. subclavia
Clavicle
Clavicula
Innominate artery
A. anonyma
Trachea
Œsophagus
Right bronchus
Bronchus dexter
½

[1] See Appendix, note 176. [2] See Appendix, note 166. [3] See Appendix, note 172. [4] See Appendix, note 168. [5] See Appendix, note 177.

Fig. 1001.—The Branches of the Arch of the Aorta and the Arteries of the Neck, seen from Behind. The Arteries of the Pharynx: the Ascending Pharyngeal Artery, Arteria Pharyngea Ascendens, its Pharyngeal Branches, Rami Pharyngei, and its Meningeal Branch (*see Appendix, note* 176), Arteria Meningea Posterior, to the Hinder Part of the Dura Mater; The Pharyngeal Branches, Rami Pharyngei, of the Superior and Inferior Thyroid Arteries; the Œsophageal and Tracheal Branches, Rami Œsophagei et Tracheales, of the Inferior Thyroid Artery.

Arteria subclavia, the subclavian artery, arteria carotis communis, the common carotid artery, arteria carotis interna, the internal carotid artery; the arteries of the pharynx, the trachea, and the œsophagus.


Superficial or cranial branches[5]
Rami occipitales
Complexus, or semispinalis capitis, muscle
Occipital artery
A. occipitalis
Cervical or descending branch, or princeps cervicis artery[6]
Ramus descendens
Splenius capitis muscle
M. splenius capitis
Trachelomastoid muscle
M. longissimus capitis
Trapezius muscle
Ascending branch of the transverse cervical artery[3]
Ramus ascendens arteriæ transversæ colli
Trapezius muscle
(Inner) dorsal cutaneous branches of the intercostal arteries
Rami cutanei dorsales (mediales)
(Outer) dorsal cutaneous branches of the intercostal arteries
Rami cutanei dorsales (laterales)
Mastoid or occipital branch of the posterior auricular artery[1]
Ramus occipitalis arteriæ auricularis posterioris
Mastoid branch of the occipital artery
Ramus mastoideus arteriæ occipitalis
Splenius capitis muscle
Posterior auricular artery—A. auricularis posterior
Muscular branch of the occipital artery
Ramus muscularis arteriæ occipitalis
Parotid gland—Glandula parotis
Sternocleidomastoid muscle—M. sternocleidomastoideus
Muscular branches of the ascending cervical artery
Rami musculares arteriæ cervicalis ascendentis
Levator anguli scapulæ muscle—M. levator scapulæ
Scalenus posticus muscle—M. scalenus posterior
Transverse cervical artery[2]—A transversa colli
Ascending branch[3]—Ramus ascendens
Trapezius muscle
Posterior scapular artery[2]—Ramus descendens
Dorsal branch of the subscapular artery[4] (1)
Posterior circumflex artery
A. circumflexa humeri posterior
Deltoid muscle
M. deltoideus
Triceps extensor cubiti muscle (middle or long head)
M. triceps brachii (caput longum)
Brachial artery
A. brachialis
(1) A. circumflexa scapulæ
2/5
Teres major muscle
Insertion of the serratus magnus muscle into the inferior angle of the scapula

[1] Called by Macalister the *posterior terminal branch* of the *posterior auricular artery*.

[2] See Appendix, note 172.

[3] In Macalister's terminology this is the *cervical branch* of the *transverse cervical* or *posterior scapular artery*. See Appendix, note 172.

[4] Commonly known in England as the *dorsalis scapulæ artery*.

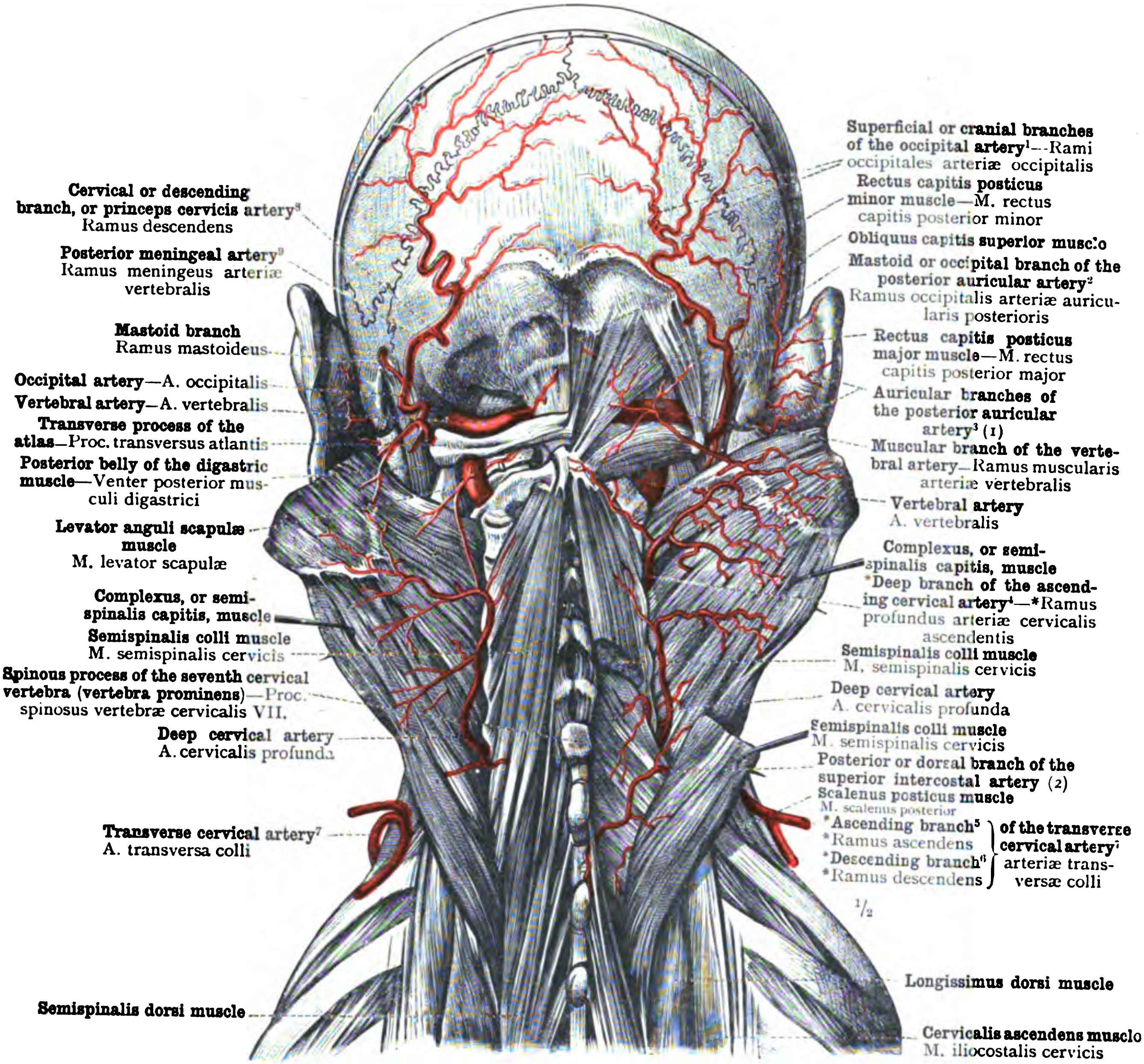
[5] Called by Macalister the *external* and *internal terminal branches* of the *occipital artery*.

[6] Or *ramus cervicalis princeps arteriæ occipitalis*.

FIG. 1002.—THE DEEP ARTERIES OF THE RIGHT NUCHAL REGION AND THE BACK OF THE RIGHT SHOULDER; SEEN FROM BEHIND.

The scapula was drawn a little away from the trunk; a horizontal incision was made through the posterior half of the deltoid muscle a little above the middle of its vertical extent, and the muscle was turned forwards; the teres major muscle was drawn somewhat downwards. The superficial offsets only of the dorsal branch of the subscapular artery (dorsalis scapulæ artery—arteria circumflexa scapulæ) are seen, on the surface of the infraspinous fascia; the deeper branches of this artery, ramifying beneath the infraspinatus muscle, are shown in Fig. 1010.

Arteria occipitalis, the occipital artery; arteria transversa colli, the transverse cervical (or posterior scapular) artery; arteria circumflexa scapulæ, the dorsal branch of the subscapular or dorsalis scapulæ artery; and arteria circumflexa humeri posterior, the posterior circumflex artery (of the arm).


Cervical or descending branch, or princeps cervicis artery[8]
Ramus descendens
Posterior meningeal artery[9]
Ramus meningeus arteriæ vertebralis
Mastoid branch
Ramus mastoideus
Occipital artery—A. occipitalis
Vertebral artery—A. vertebralis
Transverse process of the atlas—Proc. transversus atlantis
Posterior belly of the digastric muscle—Venter posterior musculi digastrici
Levator anguli scapulæ muscle
M. levator scapulæ
Complexus, or semispinalis capitis, muscle
Semispinalis colli muscle
M. semispinalis cervicis
Spinous process of the seventh cervical vertebra (vertebra prominens)—Proc. spinosus vertebræ cervicalis VII.
Deep cervical artery
A. cervicalis profunda
Transverse cervical artery[7]
A. transversa colli
Semispinalis dorsi muscle
Superficial or cranial branches of the occipital artery[1]—Rami occipitales arteriæ occipitalis
Rectus capitis posticus minor muscle—M. rectus capitis posterior minor
Obliquus capitis superior muscle
Mastoid or occipital branch of the posterior auricular artery[2]
Ramus occipitalis arteriæ auricularis posterioris
Rectus capitis posticus major muscle—M. rectus capitis posterior major
Auricular branches of the posterior auricular artery[3] (1)
Muscular branch of the vertebral artery—Ramus muscularis arteriæ vertebralis
Vertebral artery
A. vertebralis
Complexus, or semispinalis capitis, muscle
*Deep branch of the ascending cervical artery[4]—*Ramus profundus arteriæ cervicalis ascendentis
Semispinalis colli muscle
M. semispinalis cervicis
Deep cervical artery
A. cervicalis profunda
Semispinalis colli muscle
M. semispinalis cervicis
Posterior or dorsal branch of the superior intercostal artery (2)
Scalenus posticus muscle
M. scalenus posterior
*Ascending branch[5]
*Ramus ascendens
*Descending branch[6]
*Ramus descendens
of the transverse cervical artery[7]
arteriæ transversæ colli
1/2
Longissimus dorsi muscle
Cervicalis ascendens muscle
M. iliocostalis cervicis

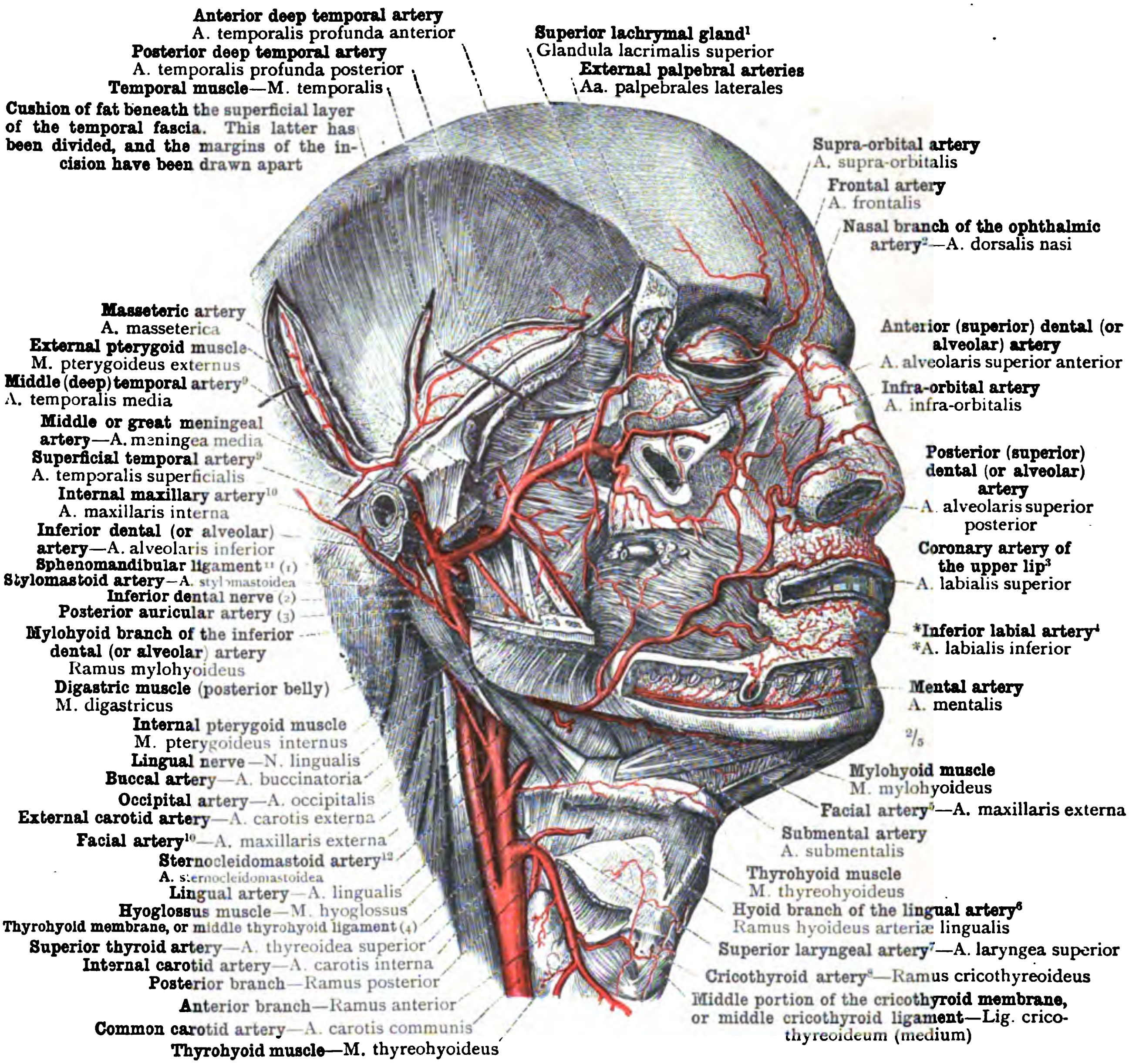
(1) Rami auriculares arteriæ auricularis posterioris (2) Ramus dorsalis arteriæ intercostalis supremæ

[1] Called by Macalister the *external* and *internal terminal branches* of the *occipital artery*.
[2] Called by Macalister the *posterior terminal branch* of the *posterior auricular artery*.
[3] The branch of the *posterior auricular artery* from which these offsets are derived is called by Macalister the *anterior terminal branch*.
[4] See Appendix, note 178.
[5] Called by Macalister the *cervical branch* of the *transverse cervical* or *posterior scapular artery*. See Appendix, note 172.
[6] The *posterior scapular artery* of English anatomists. See Appendix, note 172.
[7] *Transverse cervical* or *posterior scapular artery*, according to Macalister. See Appendix, note 172.
[8] Or *ramus cervicalis princeps arteriæ occipitalis*. [9] See Appendix, note 176.

Fig. 1003.—The Arteries of the Occipital Region, and the Deepest Arteries of the Nuchal Region. On the Left Side, the Complexus or Semispinalis Capitis Muscle is supplied by the Deep Cervical Artery; on the Right Side, however, this Muscle is furnished with Blood by a Large Muscular Offset of the Ascending Cervical Artery, known as the Deep Branch, Ramus Profundus (*see Appendix, note* 178). The Right Transverse Cervical Artery (*see note* 7 *above*) perforates the Scalenus Posticus Muscle: this is a Frequent Variety.

In the preparation shown in Fig. 1002, the complexus or semispinalis capitis muscle was separated on each side from its attachment to the skull, and turned outwards. On the right side, the semispinalis colli was cut across a little above the middle of its vertical extent, and the lower segment was drawn outwards, in order to display the passage of the deep cervical artery between the transverse processes of the seventh cervical and first dorsal vertebræ. On the left side, the rectus capitis posticus major, rectus capitis posticus minor, obliquus capitis superior, and obliquus capitis inferior muscles have been removed, and the vertebral artery has thus been fully exposed both above and below the atlas.

Arteriæ cervicalis profunda, vertebralis et occipitalis—The deep cervical, vertebral, and occipital arteries.


Anterior deep temporal artery
A. temporalis profunda anterior
Posterior deep temporal artery
A. temporalis profunda posterior
Temporal muscle—M. temporalis
Cushion of fat beneath the superficial layer of the temporal fascia. This latter has been divided, and the margins of the incision have been drawn apart
Superior lachrymal gland[1]
Glandula lacrimalis superior
External palpebral arteries
Aa. palpebrales laterales
Supra-orbital artery
A. supra-orbitalis
Frontal artery
A. frontalis
Nasal branch of the ophthalmic artery[2]—A. dorsalis nasi
Masseteric artery
A. masseterica
External pterygoid muscle
M. pterygoideus externus
Middle (deep) temporal artery[9]
A. temporalis media
Middle or great meningeal artery—A. meningea media
Superficial temporal artery[9]
A. temporalis superficialis
Internal maxillary artery[10]
A. maxillaris interna
Inferior dental (or alveolar) artery—A. alveolaris inferior
Sphenomandibular ligament[11] (1)
Stylomastoid artery—A. stylomastoidea
Inferior dental nerve (2)
Posterior auricular artery (3)
Mylohyoid branch of the inferior dental (or alveolar) artery
Ramus mylohyoideus
Digastric muscle (posterior belly)
M. digastricus
Internal pterygoid muscle
M. pterygoideus internus
Lingual nerve—N. lingualis
Buccal artery—A. buccinatoria
Occipital artery—A. occipitalis
External carotid artery—A. carotis externa
Facial artery[10]—A. maxillaris externa
Sternocleidomastoid artery[12]
A. sternocleidomastoidea
Lingual artery—A. lingualis
Hyoglossus muscle—M. hyoglossus
Thyrohyoid membrane, or middle thyrohyoid ligament (4)
Superior thyroid artery—A. thyreoidea superior
Internal carotid artery—A. carotis interna
Posterior branch—Ramus posterior
Anterior branch—Ramus anterior
Common carotid artery—A. carotis communis
Thyrohyoid muscle—M. thyreohyoideus
Anterior (superior) dental (or alveolar) artery
A. alveolaris superior anterior
Infra-orbital artery
A. infra-orbitalis
Posterior (superior) dental (or alveolar) artery
A. alveolaris superior posterior
Coronary artery of the upper lip[3]
A. labialis superior
***Inferior labial artery**[4]
*A. labialis inferior
Mental artery
A. mentalis
2/3
Mylohyoid muscle
M. mylohyoideus
Facial artery[5]—A. maxillaris externa
Submental artery
A. submentalis
Thyrohyoid muscle
M. thyreohyoideus
Hyoid branch of the lingual artery[6]
Ramus hyoideus arteriæ lingualis
Superior laryngeal artery[7]—A. laryngea superior
Cricothyroid artery[8]—Ramus cricothyreoideus
Middle portion of the cricothyroid membrane, or middle cricothyroid ligament—Lig. cricothyreoideum (medium)

(1) Lig. sphenomandibulare (2) N. alveolaris inferior (3) A. auricularis posterior (4) Membrana hyothyreoidea

[1] See Appendix, note 179.

[2] See Appendix, note 164.

[3] Called by Macalister the *superior coronary artery*.

[4] See Appendix, note 180.

[5] See Appendix, note 166.

[6] Called by Macalister the *suprahyoidean artery*.

[7] Or *laryngeal branch* of the *superior thyroid artery*.

[8] Called by Macalister the *inferior laryngeal branch* of the superior thyroid artery. This artery is endangered in the operation of laryngotomy.—Tr.

[9] See Appendix, note 168.

[10] See Appendix, note 166.

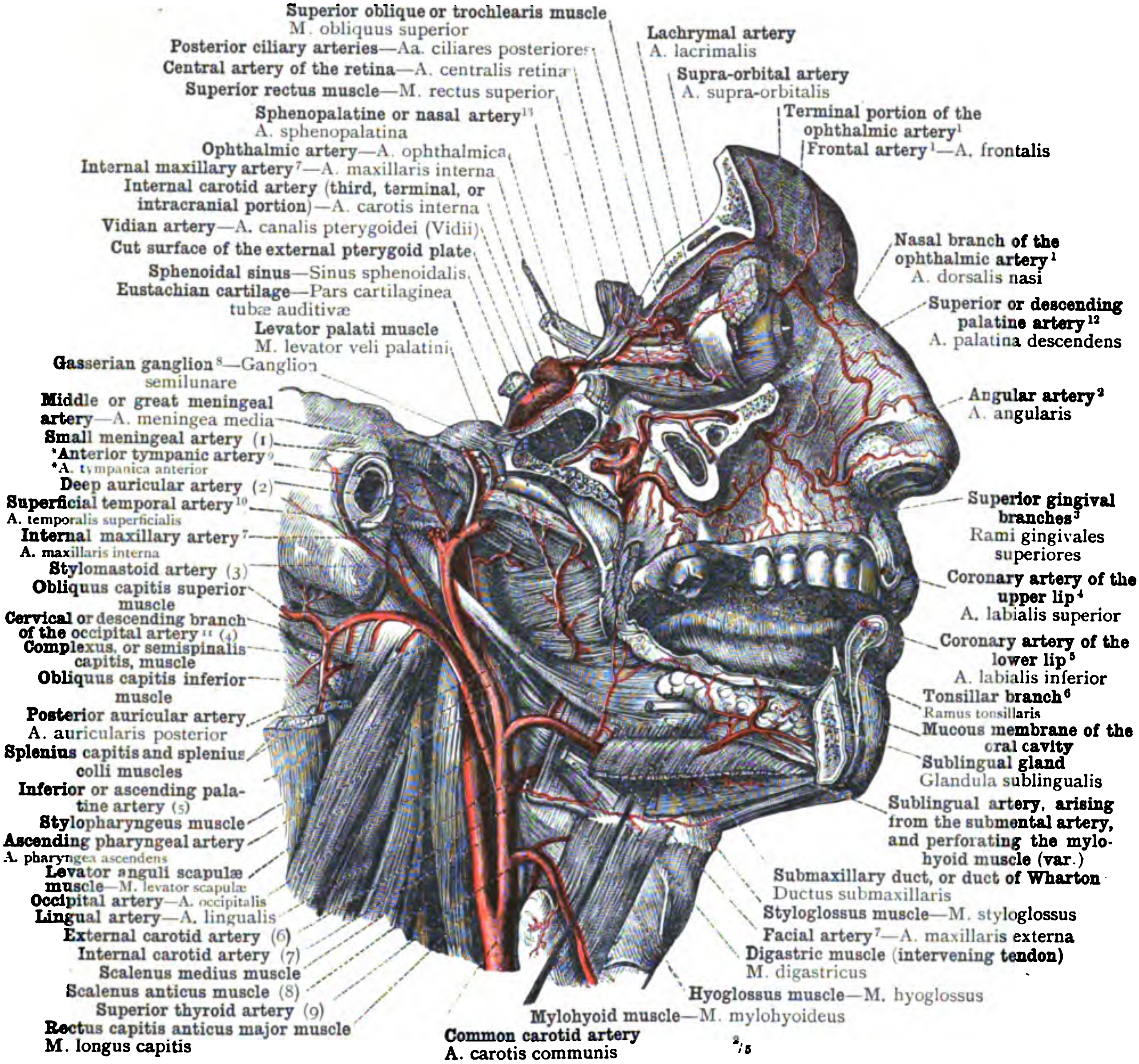
[11] Or *internal lateral ligament* of the temporomaxillary articulation.

[12] See Appendix, note 169.

FIG. 1004.—THE ARTERIES OF THE UPPER PART OF THE FRONT OF THE NECK, OF THE RETROMANDIBULAR FOSSA (FOSSA RETROMANDIBULARIS), AND OF THE ZYGOMATIC FOSSA (FOSSA INFRATEMPORALIS); SEEN FROM THE RIGHT SIDE.

In the preparation shown in Fig. 999, the pinna or auricle was cut away, and the superficial temporal artery was removed above the point at which the middle (deep) temporal branch (arteria temporalis media) is given off. The zygomatic arch was removed, together with the greater part of the masseter muscle, and the ramus of the mandible was cut away from the neck to below the middle of its vertical extent, the sphenomandibular ligament or internal lateral ligament of the temporomaxillary articulation, however, being left intact. The anterior portion of the outer wall of the orbit was removed, the orbital periosteum being preserved; the upper segment of the temporal muscle was drawn upwards; and the superficial layer of the temporal fascia having been incised and the margins of the incision having been drawn apart, the cushion of fat beneath this superficial layer, and the anterior division of the middle (deep) temporal artery, were exposed; the posterior division of this artery was exposed by an incision through the temporal fascia and the temporal muscle. The thyrohyoid muscle was for the most part removed, in order to lay bare the superior laryngeal artery perforating the thyrohyoid membrane or middle thyrohyoid ligament.

Arteria maxillaris interna—The internal maxillary artery.


Superior oblique or trochlearis muscle M. obliquus superior
Posterior ciliary arteries—Aa. ciliares posteriores
Central artery of the retina—A. centralis retinæ
Superior rectus muscle—M. rectus superior
Sphenopalatine or nasal artery[13] A. sphenopalatina
Ophthalmic artery—A. ophthalmica
Internal maxillary artery[7]—A. maxillaris interna
Internal carotid artery (third, terminal, or intracranial portion)—A. carotis interna
Vidian artery—A. canalis pterygoidei (Vidii)
Cut surface of the external pterygoid plate
Sphenoidal sinus—Sinus sphenoidalis
Eustachian cartilage—Pars cartilaginea tubæ auditivæ
Levator palati muscle M. levator veli palatini
Gasserian ganglion[8]—Ganglion semilunare
Middle or great meningeal artery—A. meningea media
Small meningeal artery (1)
Anterior tympanic artery[9] A. tympanica anterior
Deep auricular artery (2)
Superficial temporal artery[10] A. temporalis superficialis
Internal maxillary artery[7] A. maxillaris interna
Stylomastoid artery (3)
Obliquus capitis superior muscle
Cervical or descending branch of the occipital artery[11] (4)
Complexus, or semispinalis capitis, muscle
Obliquus capitis inferior muscle
Posterior auricular artery A. auricularis posterior
Splenius capitis and splenius colli muscles
Inferior or ascending palatine artery (5)
Stylopharyngeus muscle
Ascending pharyngeal artery A. pharyngea ascendens
Levator anguli scapulæ muscle—M. levator scapulæ
Occipital artery—A. occipitalis
Lingual artery—A. lingualis
External carotid artery (6)
Internal carotid artery (7)
Scalenus medius muscle
Scalenus anticus muscle (8)
Superior thyroid artery (9)
Rectus capitis anticus major muscle M. longus capitis
Lachrymal artery A. lacrimalis
Supra-orbital artery A. supra-orbitalis
Terminal portion of the ophthalmic artery[1]
Frontal artery[1]—A. frontalis
Nasal branch of the ophthalmic artery[1] A. dorsalis nasi
Superior or descending palatine artery[12] A. palatina descendens
Angular artery[2] A. angularis
Superior gingival branches[3] Rami gingivales superiores
Coronary artery of the upper lip[4] A. labialis superior
Coronary artery of the lower lip[5] A. labialis inferior
Tonsillar branch[6] Ramus tonsillaris
Mucous membrane of the oral cavity
Sublingual gland Glandula sublingualis
Sublingual artery, arising from the submental artery, and perforating the mylohyoid muscle (var.)
Submaxillary duct, or duct of Wharton Ductus submaxillaris
Styloglossus muscle—M. styloglossus
Facial artery[7]—A. maxillaris externa
Digastric muscle (intervening tendon) M. digastricus
Hyoglossus muscle—M. hyoglossus
Mylohyoid muscle—M. mylohyoideus
Common carotid artery A. carotis communis
2/5

(1) Ramus meningeus accessorius
(2) A. auricularis profunda
(3) A. stylomastoidea
(4) Ramus descendens
(5) A. palatina ascendens
(6) A. carotis externa
(7) A. carotis interna
(8) M. scalenus anterior
(9) A. thyreoidea superior

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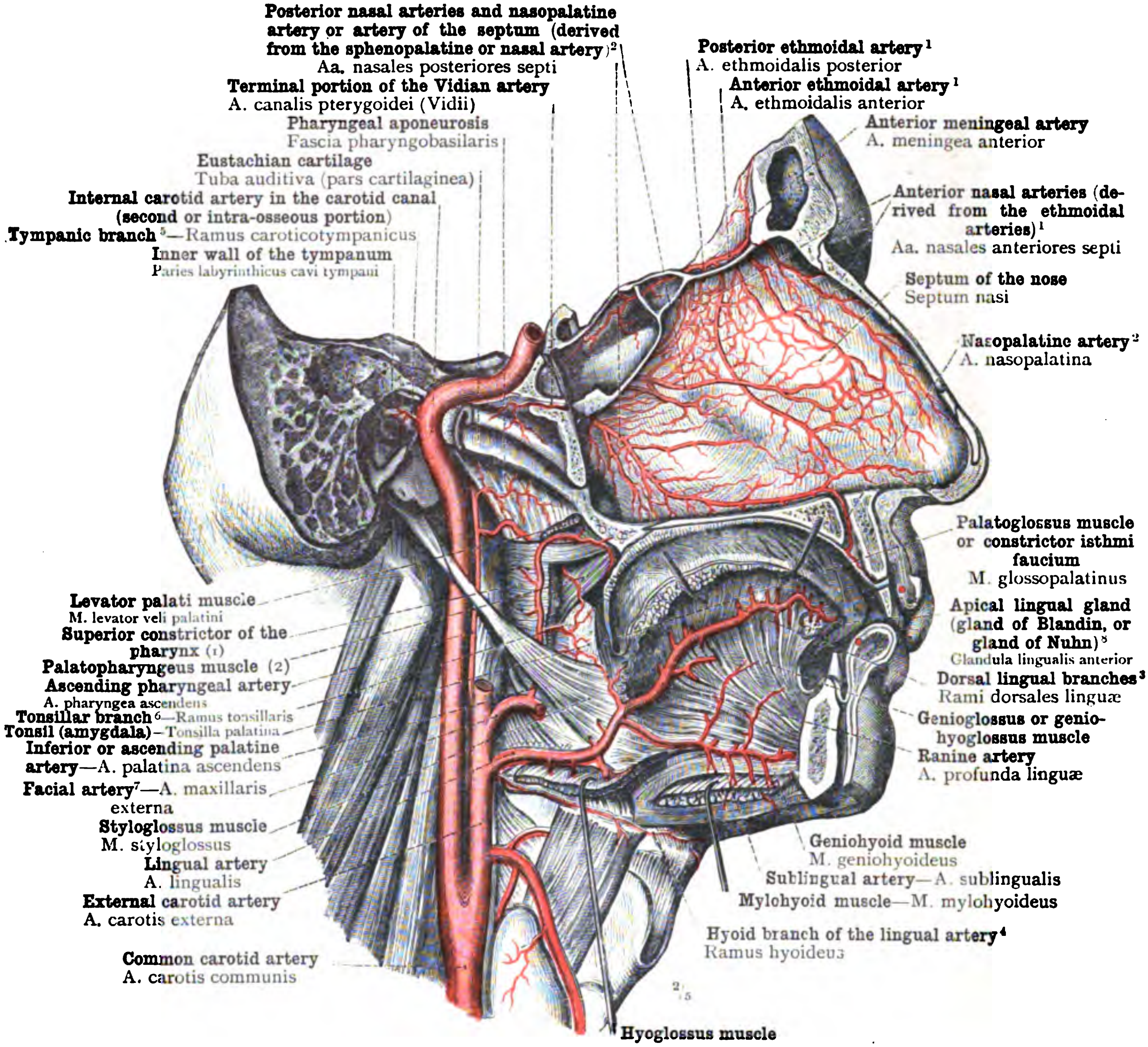
[1] See Appendix, note 164.
[2] See Appendix, note 165.
[3] See Appendix, note 181.
[4] Called by Macalister the *superior coronary artery.*
[5] Called by Macalister the *inferior coronary artery.*
[6] See Appendix, note 182.
[7] See Appendix, note 166.
[8] Or *ganglion of the fifth cranial* (*trifacial* or *trigeminal*) *nerve.*
[9] See Appendix, note 183.
[10] See Appendix, note 168.
[11] Called also *princeps cervicis artery*, or *ramus cervicalis princeps arteriæ occipitalis.*
[12] See Appendix, note 188.
[13] See Appendix, note 185.

FIG. 1005.—The Arteries of the Orbit, the Terminal Branches of the Internal Maxillary Artery, the Arteries of the Pharynx, and the Arteries of the Sublingual Region; seen from the Right Side.

In the preparation shown in Fig. 1004, the right half of the mandible was removed as far forward as the attachment of the digastric muscle, together with the external and internal pterygoid muscles and the second (middle) part of the internal maxillary artery, and by turning down the mylohyoid muscle the sublingual gland was exposed. By a sagittal section, which opened the infra-orbital canal, the outer half of the orbit was removed, the contents of the cavity, however, being preserved. By a section which opened the anterior part of the Vidian or pterygoid canal, the right sphenoidal sinus, the foramen rotundum, the foramen ovale, and the foramen spinosum, the greater part of the floor of the middle cranial fossa was removed, and, after the external pterygoid plate with the circumflexus or tensor palati muscle had been cut away, the origin of the branches of the third (terminal) part of the internal maxillary artery in the sphenomaxillary fossa was displayed.

A. maxillaris interna, the internal maxillary artery; a. ophthalmica, the ophthalmic artery; a. pharyngea ascendens, the ascending pharyngeal artery; a. palatina ascendens, the inferior or ascending palatine artery; a. sublingualis, the sublingual artery.


Posterior nasal arteries and nasopalatine artery or artery of the septum (derived from the sphenopalatine or nasal artery)[2]
Aa. nasales posteriores septi
Terminal portion of the Vidian artery
A. canalis pterygoidei (Vidii)
Pharyngeal aponeurosis
Fascia pharyngobasilaris
Eustachian cartilage
Tuba auditiva (pars cartilaginea)
Internal carotid artery in the carotid canal (second or intra-osseous portion)
Tympanic branch[5]—Ramus caroticotympanicus
Inner wall of the tympanum
Paries labyrinthicus cavi tympani
Posterior ethmoidal artery[1]
A. ethmoidalis posterior
Anterior ethmoidal artery[1]
A. ethmoidalis anterior
Anterior meningeal artery
A. meningea anterior
Anterior nasal arteries (derived from the ethmoidal arteries)[1]
Aa. nasales anteriores septi
Septum of the nose
Septum nasi
Nasopalatine artery[2]
A. nasopalatina
Palatoglossus muscle or constrictor isthmi faucium
M. glossopalatinus
Apical lingual gland (gland of Blandin, or gland of Nuhn)[8]
Glandula lingualis anterior
Dorsal lingual branches[3]
Rami dorsales linguæ
Genioglossus or geniohyoglossus muscle
Ranine artery
A. profunda linguæ
Geniohyoid muscle
M. geniohyoideus
Sublingual artery—A. sublingualis
Mylohyoid muscle—M. mylohyoideus
Hyoid branch of the lingual artery[4]
Ramus hyoideus
Hyoglossus muscle
Levator palati muscle
M. levator veli palatini
Superior constrictor of the pharynx (1)
Palatopharyngeus muscle (2)
Ascending pharyngeal artery
A. pharyngea ascendens
Tonsillar branch[6]—Ramus tonsillaris
Tonsil (amygdala)—Tonsilla palatina
Inferior or ascending palatine artery—A. palatina ascendens
Facial artery[7]—A. maxillaris externa
Styloglossus muscle
M. styloglossus
Lingual artery
A. lingualis
External carotid artery
A. carotis externa
Common carotid artery
A. carotis communis

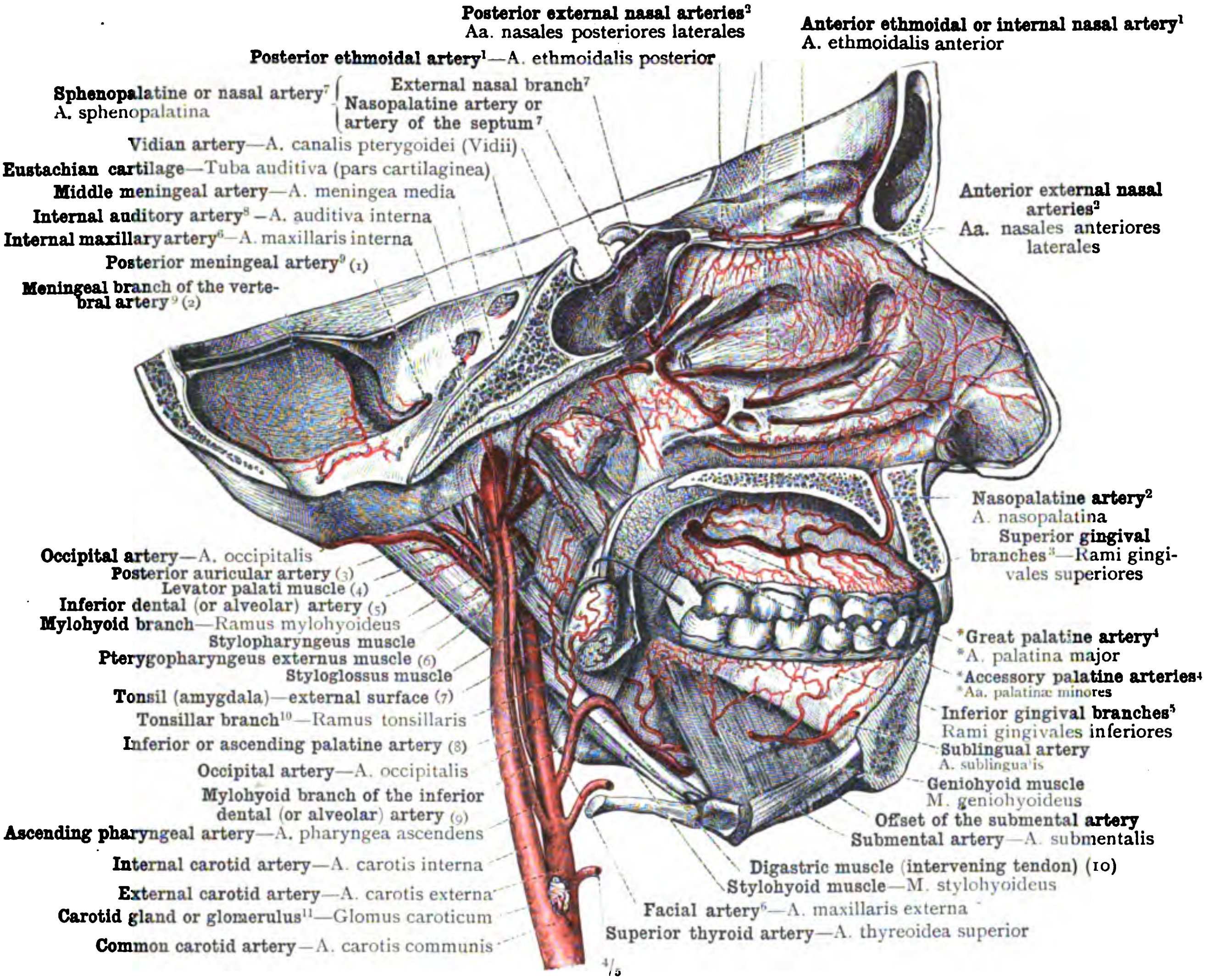
(1) M. constrictor pharyngis superior (2) M. pharyngopalatinus

[1] See Appendix, note 184.
[2] See Appendix, note 185.
[3] See Appendix, note 185.
[4] Called by Macalister the *suprahyoidean artery.*
[5] See Appendix, note 187.
[6] See Appendix, note 182.
[7] See Appendix, note 166.
[8] See note 2 to p. 420 in Part IV.

FIG. 1006.—ARTERIES OF THE NASAL SEPTUM, THE TONGUE, AND THE PHARYNX; SEEN FROM THE RIGHT SIDE.

In the preparation shown in Fig. 1005, by a sagittal section passing a little to the right of the median plane, the right side of the septum of the nose was exposed; by a section somewhat further to the right, the lower part of the internal pterygoid plate was removed, and the Vidian or pterygoid canal was opened up to its posterior orifice. By means of a section passing through the temporal bone itself, the direction of which was nearly that of the axis of the petrous portion of the temporal bone, the middle ear was opened, and also the carotid canal, by the removal of its outer wall. The posterior extremity of the Eustachian cartilage was cut away, the levator palati muscle was removed just above the point at which it enters the soft palate, and the pharyngeal aponeurosis was laid bare down to the upper border of the superior constrictor of the pharynx. By the removal of the anterior portion of this muscle, the outer surface of the tonsil (amygdala) was exposed. By the partial removal of the hyoglossus muscle and by drawing its lower segment downwards, the lingual artery was laid bare; and by the partial removal of the intrinsic muscular substance of the tongue, the ranine artery was brought into view.

Arteries of the septum of the nose. A. lingualis, the lingual artery. Aa. pharyngea et palatina ascendens, the ascending pharyngeal and ascending palatine arteries. A. carotis interna, the internal carotid artery.


Posterior external nasal arteries[2]
Aa. nasales posteriores laterales
Anterior ethmoidal or internal nasal artery[1]
A. ethmoidalis anterior
Posterior ethmoidal artery[1]—A. ethmoidalis posterior
Sphenopalatine or nasal artery[7]
A. sphenopalatina
External nasal branch[7]
Nasopalatine artery or artery of the septum[7]
Vidian artery—A. canalis pterygoidei (Vidii)
Eustachian cartilage—Tuba auditiva (pars cartilaginea)
Middle meningeal artery—A. meningea media
Internal auditory artery[8]—A. auditiva interna
Internal maxillary artery[6]—A. maxillaris interna
Posterior meningeal artery[9] (1)
Meningeal branch of the vertebral artery[9] (2)
Anterior external nasal arteries[2]
Aa. nasales anteriores laterales
Occipital artery—A. occipitalis
Posterior auricular artery (3)
Levator palati muscle (4)
Inferior dental (or alveolar) artery (5)
Mylohyoid branch—Ramus mylohyoideus
Stylopharyngeus muscle
Pterygopharyngeus externus muscle (6)
Styloglossus muscle
Tonsil (amygdala)—external surface (7)
Tonsillar branch[10]—Ramus tonsillaris
Inferior or ascending palatine artery (8)
Occipital artery—A. occipitalis
Mylohyoid branch of the inferior dental (or alveolar) artery (9)
Ascending pharyngeal artery—A. pharyngea ascendens
Internal carotid artery—A. carotis interna
External carotid artery—A. carotis externa
Carotid gland or glomerulus[11]—Glomus caroticum
Common carotid artery—A. carotis communis
Nasopalatine artery[2]
A. nasopalatina
Superior gingival branches[3]—Rami gingivales superiores
*Great palatine artery[4]
*A. palatina major
*Accessory palatine arteries[4]
*Aa. palatinæ minores
Inferior gingival branches[5]
Rami gingivales inferiores
Sublingual artery
A. sublingualis
Geniohyoid muscle
M. geniohyoideus
Offset of the submental artery
Submental artery—A. submentalis
Digastric muscle (intervening tendon) (10)
Stylohyoid muscle—M. stylohyoideus
Facial artery[6]—A. maxillaris externa
Superior thyroid artery—A. thyreoidea superior
4/5

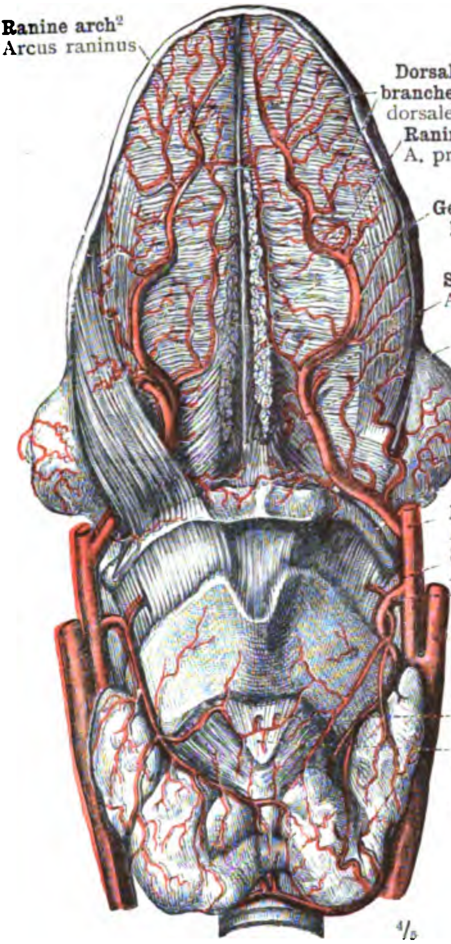
(1) A. meningea posterior
(2) Ramus meningeus arteriæ vertebralis
(3) A. auricularis posterior
(4) M. levator veli palatini
(5) A. alveolaris inferior
(6) M. pterygopharyngeus
(7) Tonsilla palatina—facies lateralis
(8) A. palatina ascendens
(9) Ramus mylohyoideus arteriæ alveolaris inferioris
(10) M. digastricus

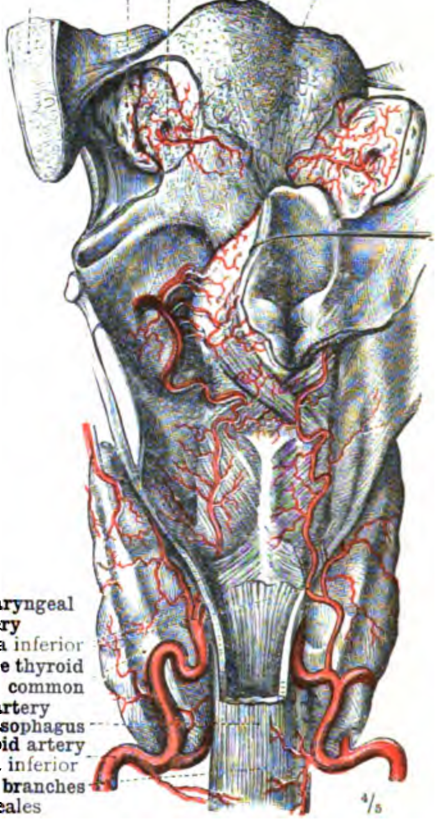
[1] See Appendix, note 184.
[2] See Appendix, note 183.
[3] See Appendix, note 181.
[4] See Appendix, note 188.
[5] See Appendix, note 189.
[6] See Appendix, note 166.
[7] See Appendix, note 185.
[8] Called by Quain the *auditory artery* without qualification.
[9] See Appendix, note 190.
[10] See Appendix, note 182.
[11] Called by Macalister the *intercarotic* body, and regarded by him as "the remains of a vascular rete, probably that of the second visceral cleft." Known also as *glandula intercarotica*, but the term "gland" is a misnomer.—Tr.

FIG. 1007.—THE ARTERIES OF THE EXTERNAL WALL OF THE NASAL FOSSÆ, OF THE CARTILAGINOUS PORTION OF THE EUSTACHIAN TUBE, OF THE HARD PALATE, OF THE TONSIL (AMYGDALA), AND OF THE EXTERNAL WALL OF THE MOUTH; THE SMALLER MENINGEAL ARTERIES; THE INTERNAL CAROTID ARTERY, THE EXTERNAL CAROTID ARTERY AND ITS BRANCHES. LEFT HALF OF THE HEAD SEEN FROM THE INNER SIDE.

By a sagittal section passing a little to the left of the median plane, the right half of the head was removed, the spinal column having first been cut away. After the pharynx had been removed, the left external and internal carotid arteries, as well as the branches of the former artery, were exposed from within. The left half of the soft palate and the left tonsil (amygdala) were retained, the latter being drawn a little forward, in order to display the ramification on its surface of the offsets of the tonsillar branch of the ascending palatine artery. Behind the levator palati muscle, a narrow strip of the pterygopharyngeus externus muscle was preserved. The posterior extremity of the middle turbinate bone was removed, in order to expose the lower posterior external nasal branch of the sphenopalatine or nasal artery. In the oral cavity, the tongue and the sublingual gland were removed, the mylohyoid and geniohyoid muscles as well as the anterior portion of the sublingual artery being preserved, and the inferior gingival branches were exposed, springing from the sublingual artery, from a perforating offset of the submental artery, and from the mylohyoid branch of the inferior dental (or alveolar) artery.

Arteries of the external wall of the nasal fossæ: A. pterygopalatina, the superior or descending palatine artery. A. canalis pterygoidei, the Vidian artery. Aa. pharyngea et palatina ascendens, the ascending pharyngeal and the inferior or ascending palatine artery.


***Ranine arch**[2]
*Arcus raninus
Dorsal lingual branches[3]—Rami dorsales linguæ
Ranine artery
A. profunda linguæ
Genioglossus or genio-hyoglossus muscle
Sublingual artery
A. sublingualis
Hyoglossus muscle
Tonsil (amygdala)
Tonsilla palatina
Tonsillar branch of the ascending palatine artery[5]—Ramus tonsillaris arteriæ palatinæ ascendentis
Hyoid branch[6]—Ramus hyoideus
Lingual artery—A. lingualis
External carotid artery
A. carotis externa
Superior laryngeal artery[1]
A. laryngea superior
Superior thyroid artery
A. thyreoidea superior
Internal carotid artery
A. carotis interna
Cricothyroid artery[7]
Ramus cricothyreoideus
Middle portion of the cricothyroid membrane, or middle cricothyroid ligament
Lig. cricothyreoideum (medium)
4/5


Branches of the superior laryngeal artery (the laryngeal branch of the superior thyroid artery) to the epiglottis
Superior laryngeal artery[1]—A. laryngea superior
Dorsal lingual branch for the root of the tongue and the tonsil (amygdala)
Tonsil (amygdala)—Tonsilla palatina
Soft palate[4]—Velum palatinum
Inferior laryngeal artery
A. laryngea inferior
Groove on the thyroid body for the common carotid artery
Œsophagus
Inferior thyroid artery
A. thyreoidea inferior
Œsophageal and tracheal branches
Rami œsophagei et tracheales
4/5

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[1] Or *laryngeal branch* of the *superior thyroid artery*.
[2] See Appendix, note 191. [3] See Appendix, note 185. [4] Or *velum pendulum palati*. [5] See Appendix, note 182.
[6] The *hyoid branch* of the *lingual artery* is called by Macalister the *suprahyoidean artery*.
[7] Called by Macalister the *inferior laryngeal branch* of the *superior thyroid artery*. This vessel is endangered in the operation of laryngotomy.—TR.

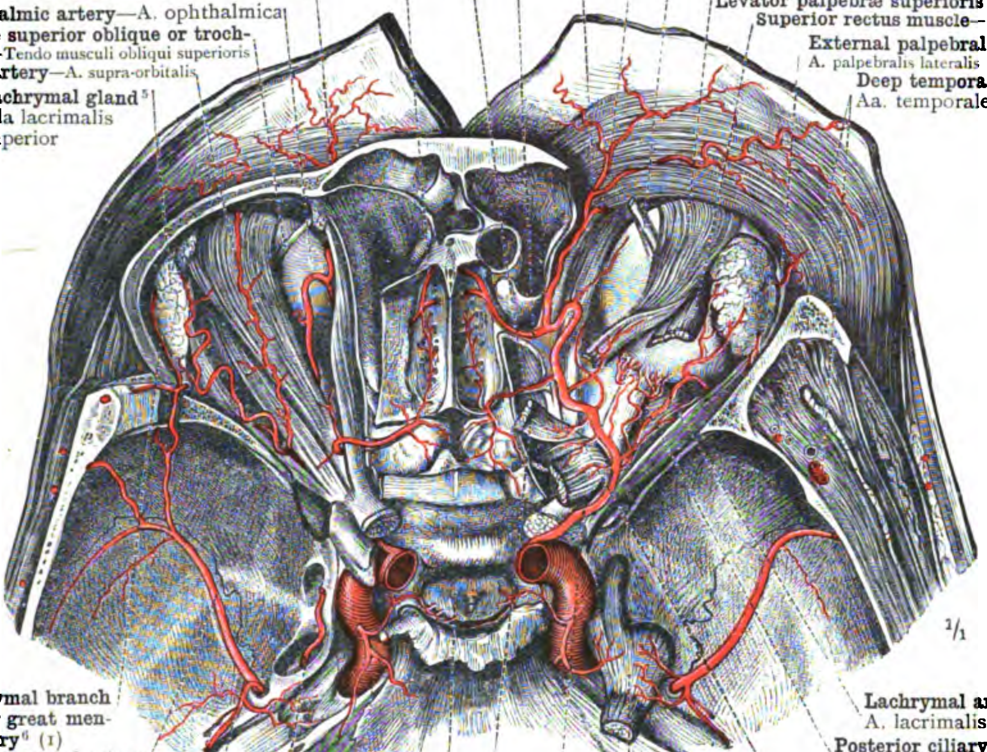
FIG. 1008.—THE TONGUE, THE LARYNX, AND THE THYROID BODY, SEEN FROM THE VENTRAL SIDE. THE RAMIFICATION OF THE RANINE ARTERY, ARTERIA PROFUNDA LINGUÆ, AND THE TRANSVERSE ANASTOMOSIS BETWEEN THE TWO RANINE ARTERIES, KNOWN AS THE *RANINE ARCH, *ARCUS RANINUS (*see Appendix, note* 101); THE LINGUAL ARTERY, ARTERIA LINGUALIS, WITH ITS HYOID BRANCH, RAMUS HYOIDEUS (*see note* 6 *above*); THE ARTERIES OF THE TONSIL (AMYGDALA), TONSILLA PALATINA; THE SUPERIOR THYROID ARTERY, ARTERIA THYROIDEA SUPERIOR, WITH THE SUPERIOR LARYNGEAL ARTERY, ARTERIA LARYNGEA SUPERIOR (*see note* 1 *above*), AND THE CRICOTHYROID ARTERY, RAMUS CRICOTHYROIDEUS (*see note* 7 *above*).

In the right half of the tongue the hyoglossus muscle has been preserved; in the left half it has been removed, and the left lingual artery has thus been fully exposed. The sublingual artery, arteria sublingualis, has been cut away on both sides close to its origin; the dorsal lingual branches have been traced for a considerable distance by the partial removal of the intrinsic muscular substance of the tongue.

FIG. 1009.—THE ROOT OF THE TONGUE, THE LARYNX, AND THE LARYNGEAL PORTION OF THE PHARYNX, WITH THE ADJOINING PORTION OF THE ŒSOPHAGUS AND THE THYROID BODY; SEEN FROM THE DORSAL SIDE.

After the posterior wall of the pharynx had been removed, the mucous membrane covering the left pyriform sinus and the anterior wall of the pharynx as far down as the commencement of the œsophagus was dissected off, and the superior and inferior laryngeal arteries were exposed. The epiglottis was drawn to the right, in order to display the offsets with which it is supplied by the superior laryngeal artery. On both sides the mucous membrane of the root of the tongue and of the tonsils was partially removed, in order to expose the site of emergence on the dorsum of the muscular substance of the tongue of the hindmost dorsal lingual branch, and the superficial ramification of that artery.

Arteries of the Tongue, the Larynx, the Tonsil (Amygdala), and the Thyroid Body.


Anterior ethmoidal or internal nasal artery[4]
A. ethmoidalis anterior
Posterior ethmoidal artery[4]—A. ethmoidalis posterior
Anterior meningeal artery—A. meningea anterior
Frontal artery[1]—A. frontalis
Ophthalmic artery—A. ophthalmica
Tendon of the superior oblique or trochlearis muscle—Tendo musculi obliqui superioris
Supra-orbital artery—A. supra-orbitalis
Superior lachrymal gland[5]
Glandula lacrimalis superior
Frontal artery[1]—A. frontalis
Nasal branch of the ophthalmic artery[1]
A. dorsalis nasi
Tendon of the superior oblique or trochlearis muscle—Tendo musculi obliqui superioris
Levator palpebræ superioris muscle
Superior rectus muscle—M. rectus superior
External palpebral artery
A. palpebralis lateralis
Deep temporal arteries
Aa. temporales profundæ
1/1
Orbital or lachrymal branch of the middle or great meningeal artery[6] (1)
Middle or great meningeal artery
A. meningea media
Superior tympanic artery[7]
A. tympanica superior
Petrosal or Fallopian branch[8] (2)
Small meningeal artery
Ramus meningeus accessorius
Internal carotid artery
A. carotis interna
Lachrymal artery
A. lacrimalis
Posterior ciliary arteries
Aa. ciliares posteriores
Muscular branches[2]
Rami musculares
Gasserian ganglion[3]—Ganglion semilunare (Gasseri)
Ophthalmic artery—A. ophthalmica
Superior oblique or trochlearis muscle—M. obliquus superior
Pituitary body, or hypophysis cerebri
Hypophysis

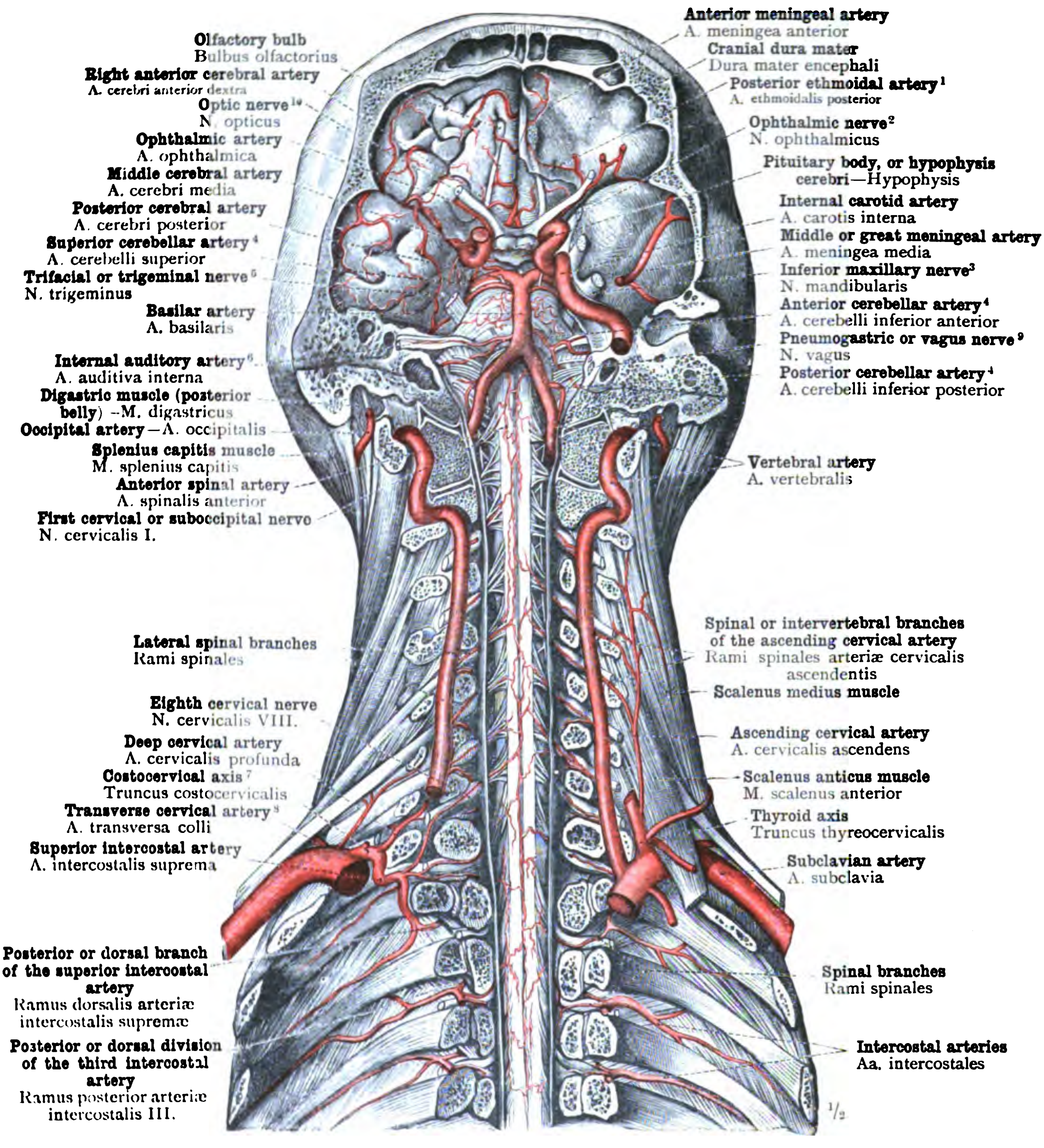
(1) Ramus orbitalis (var.) (2) Ramus petrosus superficialis

[1] See Appendix, note 164.
[2] See Appendix, note 192.
[3] Or *ganglion of the fifth cranial* (*trifacial* or *trigeminal*) *nerve.*
[4] See Appendix, note 184.
[5] See Appendix, note 179.
[6] See Appendix, note 193.
[7] See Appendix, note 194.
[8] See Appendix, note 183.

Fig. 1010.—The Third, Terminal, or Intracranial Portion of the Internal Carotid Artery, Arteria Carotis Interna, and the Distribution of the Ophthalmic Artery, Arteria Ophthalmica; seen from Above. The Middle Meningeal Artery sends an Offset to the Lachrymal Gland through the Outer Wall of the Orbit (a Common Variety—*see Appendix, note* 193). On the Left Side, the Posterior Ethmoidal Artery is larger than the Anterior Ethmoidal, and crosses above (instead of below) the Superior Oblique or Trochlearis Muscle (Var.).

The roof of the right orbit, and the roof and the upper part of the outer wall of the left orbit, were removed. The scalp having been separated from the subjacent squamous portion of the frontal bone and turned forwards and a little downwards, the branches of the ophthalmic artery, arteria ophthalmica, emerging from beneath the orbital arch or supra-orbital margin, margo supra-orbitalis, were exposed: these branches are, the supra-orbital artery, arteria supra-orbitalis; the frontal artery, arteria frontalis; and the nasal branch, arteria dorsalis nasi (*see Appendix, note* 164). On the right side, the levator palpebræ superioris muscle, the superior rectus muscle, and the superior oblique or trochlearis muscle were in part removed, and their proximal segments were turned backwards, in order to expose the entire course of the ophthalmic artery, arteria ophthalmica, its offsets to the orbital muscles, rami musculares (*see Appendix, note* 192), and to the eyeball, and the origin of the ethmoidal arteries (*see Appendix, note* 184). The right anterior ethmoidal or internal nasal artery was laid bare from its origin up to its point of emergence from the cranial cavity; by the partial removal of the roof of the sphenoidal sinus, its mucoperiosteum being left intact, the ramification in the substance of this membrane of the branches of the posterior ethmoidal artery was displayed.

Arteries of the Orbit, and of the Anterior and Middle Cranial Fossæ.


Olfactory bulb
Bulbus olfactorius
Right anterior cerebral artery
A. cerebri anterior dextra
Optic nerve[10]
N. opticus
Ophthalmic artery
A. ophthalmica
Middle cerebral artery
A. cerebri media
Posterior cerebral artery
A. cerebri posterior
Superior cerebellar artery[4]
A. cerebelli superior
Trifacial or trigeminal nerve[5]
N. trigeminus
Basilar artery
A. basilaris
Internal auditory artery[6]
A. auditiva interna
Digastric muscle (posterior belly) –M. digastricus
Occipital artery—A. occipitalis
Splenius capitis muscle
M. splenius capitis
Anterior spinal artery
A. spinalis anterior
First cervical or suboccipital nerve
N. cervicalis I.
Lateral spinal branches
Rami spinales
Eighth cervical nerve
N. cervicalis VIII.
Deep cervical artery
A. cervicalis profunda
Costocervical axis[7]
Truncus costocervicalis
Transverse cervical artery[8]
A. transversa colli
Superior intercostal artery
A. intercostalis suprema
Posterior or dorsal branch of the superior intercostal artery
Ramus dorsalis arteriæ intercostalis supremæ
Posterior or dorsal division of the third intercostal artery
Ramus posterior arteriæ intercostalis III.
Anterior meningeal artery
A. meningea anterior
Cranial dura mater
Dura mater encephali
Posterior ethmoidal artery[1]
A. ethmoidalis posterior
Ophthalmic nerve[2]
N. ophthalmicus
Pituitary body, or hypophysis cerebri—Hypophysis
Internal carotid artery
A. carotis interna
Middle or great meningeal artery
A. meningea media
Inferior maxillary nerve[3]
N. mandibularis
Anterior cerebellar artery[4]
A. cerebelli inferior anterior
Pneumogastric or vagus nerve[9]
N. vagus
Posterior cerebellar artery[4]
A. cerebelli inferior posterior
Vertebral artery
A. vertebralis
Spinal or intervertebral branches of the ascending cervical artery
Rami spinales arteriæ cervicalis ascendentis
Scalenus medius muscle
Ascending cervical artery
A. cervicalis ascendens
Scalenus anticus muscle
M. scalenus anterior
Thyroid axis
Truncus thyreocervicalis
Subclavian artery
A. subclavia
Spinal branches
Rami spinales
Intercostal arteries
Aa. intercostales
1/2

[1] See Appendix, note [184].

[2] Or *first division* of the *fifth cranial* (*trifacial* or *trigeminal*) *nerve*.

[3] Or *third division* of the *fifth cranial* (*trifacial* or *trigeminal*) *nerve*.

[4] See Appendix, note [195].

[5] Or *fifth cranial nerve*.

[6] Called by Quain the *auditory artery* without qualification.

[7] See Appendix, note [177].

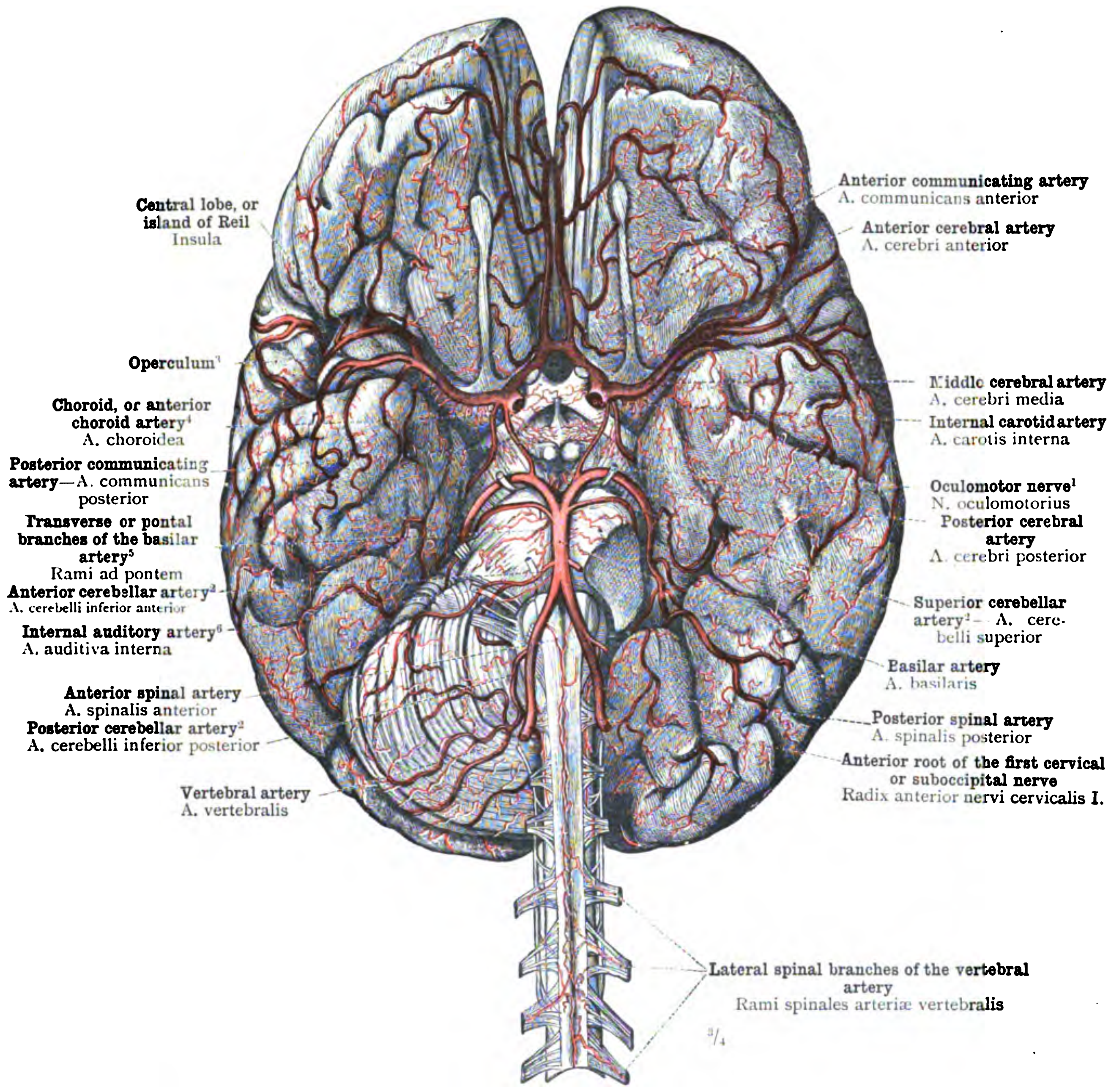
[8] Or *posterior scapular artery* (Macalister); and see Appendix, note [172].

[9] Or *tenth cranial nerve*, according to Soemerring's enumeration. (According to that of Willis, the *par vagum* of the eighth cranial nerve.)—TR.

[10] Or *second cranial nerve*.

FIG. 1011.—IN THE THORAX, THE BODIES OF THE VERTEBRÆ WITH THE HEADS OF THE RIBS HAVE BEEN REMOVED; IN THE NECK, THE BODIES OF THE VERTEBRÆ AND THE ANTERIOR LIMBS OF THE TRANSVERSE PROCESSES (*i.e.*, THE COSTAL PROCESSES), SO AS TO EXPOSE THE VERTEBRAL ARTERY, AND, AFTER CUTTING AWAY THE ANTERIOR PORTION OF THE SPINAL DURA MATER, THE SPINAL BRANCHES OF THE VERTEBRAL ARTERY AND THE SPINAL OR INTERVERTEBRAL BRANCHES OF THE ASCENDING CERVICAL ARTERY. IN THE HEAD, THE GREATER PART OF THE BASE OF THE SKULL HAS BEEN CUT AWAY, AND ON THE RIGHT SIDE THE EXPOSED PORTION OF THE CRANIAL DURA MATER HAS ALSO BEEN REMOVED, SO AS TO LAY BARE THE ARTERIES OF THE BASE OF THE BRAIN. SEEN FROM BEFORE. THE INTERNAL AUDITORY ARTERY, ARTERIA AUDITIVA INTERNA (*see note* [6] *above*), ARISES IN THIS SPECIMEN FROM THE ANTERIOR CEREBELLAR ARTERY, ARTERIA CEREBELLI INFERIOR ANTERIOR (*see Appendix, note* [195]), INSTEAD OF, AS NORMALLY, DIRECTLY FROM THE BASILAR ARTERY. THIS IS A COMMON VARIETY.

A. vertebralis, the vertebral artery. A. basilaris, the basilar artery. A. carotis interna, the internal carotid artery.


Central lobe, or island of Reil
Insula
Operculum[1]
Choroid, or anterior choroid artery[4]
A. choroidea
Posterior communicating artery—A. communicans posterior
Transverse or pontal branches of the basilar artery[5]
Rami ad pontem
Anterior cerebellar artery[2]
A. cerebelli inferior anterior
Internal auditory artery[6]
A. auditiva interna
Anterior spinal artery
A. spinalis anterior
Posterior cerebellar artery[2]
A. cerebelli inferior posterior
Vertebral artery
A. vertebralis
Anterior communicating artery
A. communicans anterior
Anterior cerebral artery
A. cerebri anterior
Middle cerebral artery
A. cerebri media
Internal carotid artery
A. carotis interna
Oculomotor nerve[1]
N. oculomotorius
Posterior cerebral artery
A. cerebri posterior
Superior cerebellar artery[3]—A. cerebelli superior
Basilar artery
A. basilaris
Posterior spinal artery
A. spinalis posterior
Anterior root of the first cervical or suboccipital nerve
Radix anterior nervi cervicalis I.
Lateral spinal branches of the vertebral artery
Rami spinales arteriæ vertebralis
3/4

[1] Or *third cranial nerve.* Sometimes distinguished from the *fourth* and the *sixth cranial nerves* as the *common oculomotor nerve,* and often spoken of as the *motor oculi nerve.*

[2] See Appendix, note 195.

[3] See Appendix, note 196.

[4] Distinguished as *anterior choroid artery* from the *posterior choroid branch* of the *posterior cerebral artery,* which is not mentioned by the author.—Tr.

[5] Or *transverse arteries of the pons* (Ellis, "Demonstrations of Anatomy").

[6] Called by Quain the *auditory artery* without qualification.

FIG. 1012.—THE ARTERIES OF THE BASE OF THE BRAIN; THE CIRCLE OF WILLIS, CIRCULUS ARTERIOSUS (WILLISI).

The frontal lobes were drawn a little apart, in order to display the two anterior cerebral arteries as far as the genu of the corpus callosum; the right fissure of Sylvius, fissura cerebri lateralis dextra, was opened up to some extent, in order to trace the ramification of the middle cerebral artery. After the removal of the left hemisphere of the cerebellum, the ramification of the posterior cerebral artery on the basal (inferior) surface of the temporal and occipital lobes was exposed.

Arteries of the Brain.

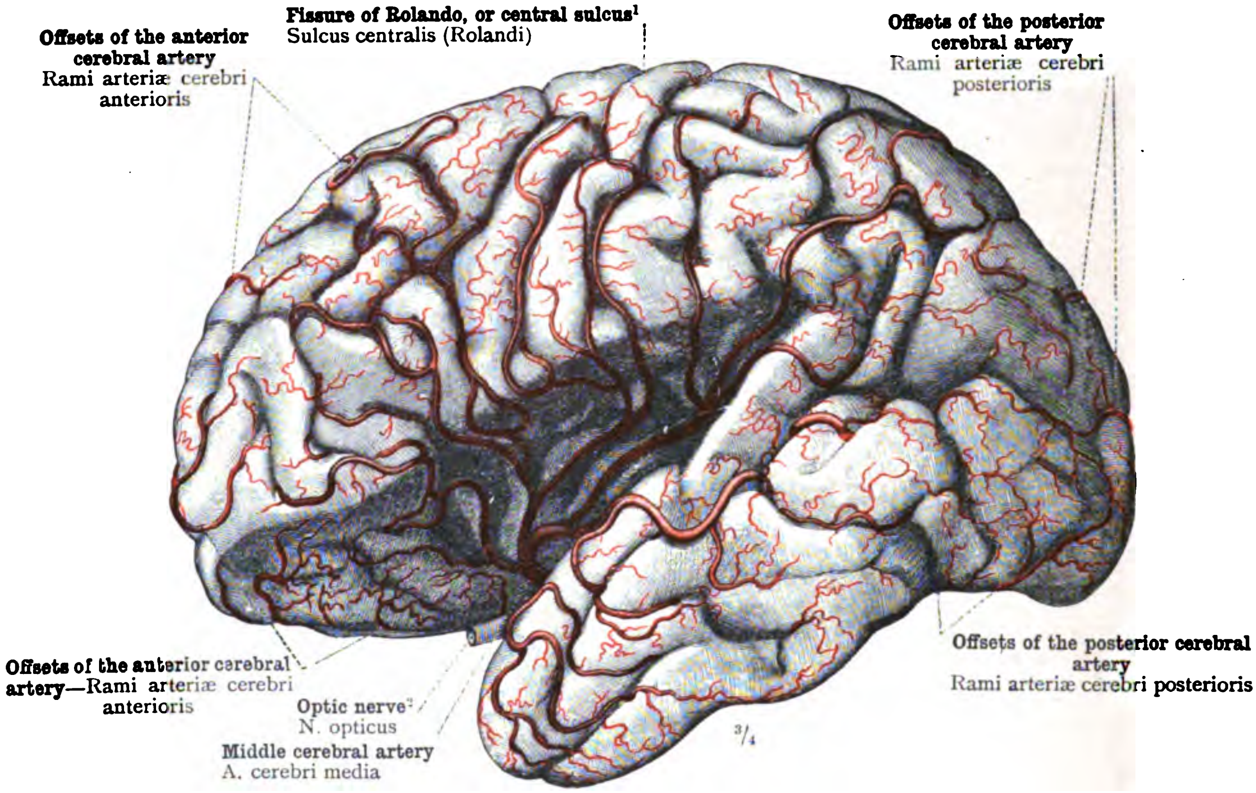

Offsets of the anterior cerebral artery
Rami arteriæ cerebri anterioris
Fissure of Rolando, or central sulcus[1]
Sulcus centralis (Rolandi)
Offsets of the posterior cerebral artery
Rami arteriæ cerebri posterioris
Offsets of the anterior cerebral artery—Rami arteriæ cerebri anterioris
Optic nerve[2]
N. opticus
Middle cerebral artery
A. cerebri media
3/4
Offsets of the posterior cerebral artery
Rami arteriæ cerebri posterioris

FIG. 1013.—THE RAMIFICATION OF THE CEREBRAL ARTERIES, ARTERIÆ CEREBRI, ON THE CONVEX (OUTER) SURFACE OF THE LEFT CEREBRAL HEMISPHERE AND THE CENTRAL LOBE OR ISLAND OF REIL, AND ALSO ON THE BASAL (INFERIOR) SURFACE OF THE FRONTAL LOBE. THE LEFT HEMISPHERE OF THE CEREBRUM, SEEN FROM THE OUTER SIDE.

The fissure of Sylvius, fissura cerebri lateralis (Sylvii), was widely opened by the separation of the adjoining lobes of the cerebral hemisphere, in order to display the ramification of the middle cerebral artery, arteria cerebri media, at the bottom of the fissure.

Arteries of the Brain.

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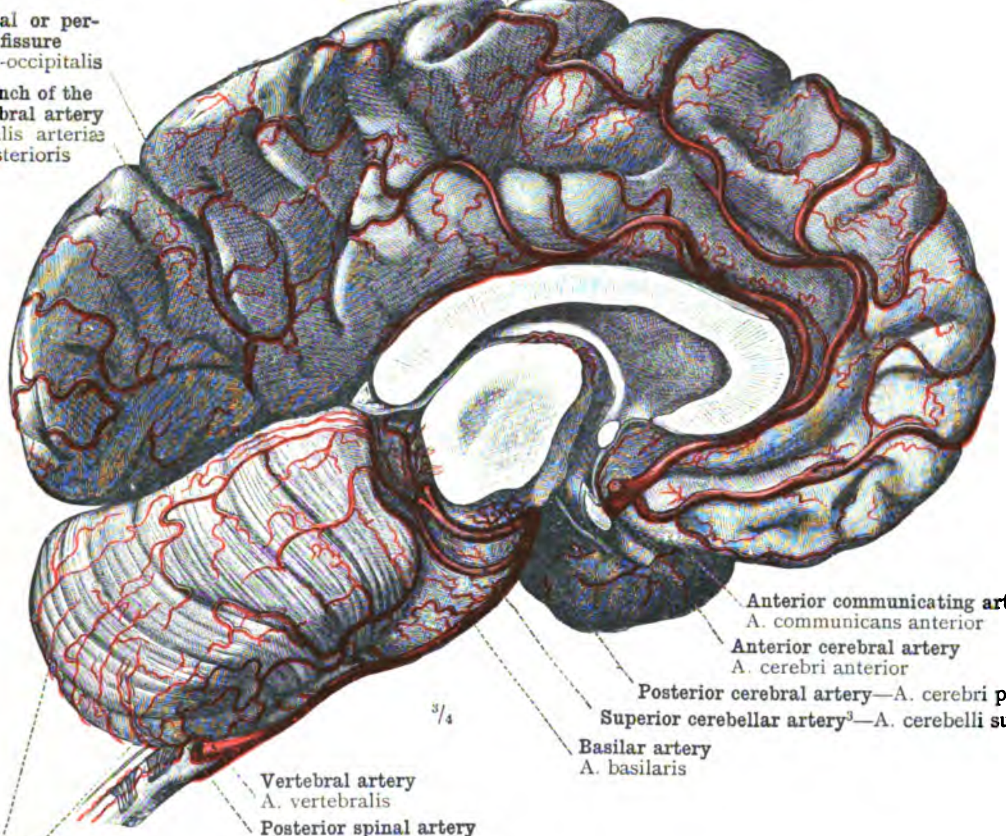
[1] *Fissure of Rolando.*—If the use of the term *fissure* be restricted, according to the usage of some authorities, to those sulci that involve the whole thickness both of the grey and the white substance of the cerebrum, and thus affect the form of the lateral ventricle or give rise to eminences projecting on its wall, the *central sulcus* does not come within that category. It is, on the other hand, one of the *primary sulci*, one of those that are already apparent in the sixth month of intra-uterine life ; and, moreover, it is an *interlobar sulcus*, constituting the boundary on the outer surface of the hemisphere between the frontal and the parietal lobes. Hence it is usually distinguished by the title of *fissure*, and is seldom spoken of as the *furrow of Rolando*.—TR.

[2] Or *second cranial nerve.*


Callosomarginal sulcus or fissure (marginal portion)[1]
Sulcus cinguli[1] (pars marginalis)
Fissure of Rolando, or central sulcus[2]
Sulcus centralis (Rolandi)
Parieto-occipital or perpendicular fissure
Fissura parieto-occipitalis
Occipital branch of the posterior cerebral artery
Ramus medialis arteriæ cerebri posterioris
Anterior communicating artery
A. communicans anterior
Anterior cerebral artery
A. cerebri anterior
Posterior cerebral artery—A. cerebri posterior
Superior cerebellar artery[3]—A. cerebelli superior
Basilar artery
A. basilaris
3/4
Vertebral artery
A. vertebralis
Posterior spinal artery
A. spinalis posterior
Offsets of the posterior cerebellar artery[3]
Rami arteriæ cerebelli inferioris posterioris

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[1] *Sulcus Cinguli.*—This term is not used by English anatomists. The *callosal convolution*, *gyrus fornicatus*, is in England sometimes termed *gyrus cinguli*, and this latter name is used by the author to distinguish what he calls the "upper portion of the *gyrus fornicatus*," the convolution on the inner (mesial) surface of the hemisphere immediately above the corpus callosum or great commissure. The *gyrus cinguli* is bounded above by the *sulcus cinguli*, the *callosomarginal sulcus* of English authors; and this is divided by Toldt into a *pars marginalis* and a *pars subfrontalis*, *marginal* and *subfrontal portions*, the terms being self-explanatory. The posterior portion was called by Wilder the *paracentral fissure*; the anterior portion, which is parallel with the genu of the corpus callosum, the *prelimbic fissure*.—Tr.

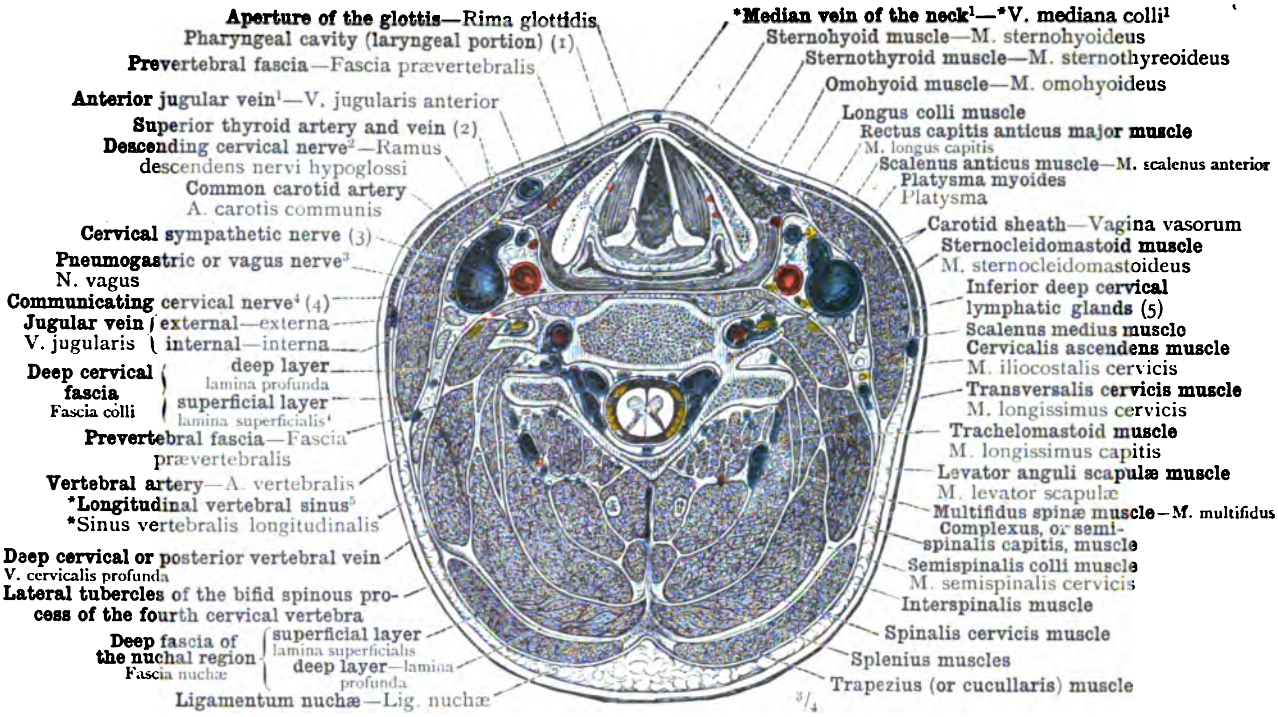
[2] See note [1] to p. 624.

[3] See Appendix, note [195].

FIG. 1014.—THE DISTRIBUTION OF THE ANTERIOR AND POSTERIOR CEREBRAL ARTERIES, ARTERIÆ CEREBRI ANTERIOR ET POSTERIOR, ON THE INTERNAL (MESIAL) SURFACE OF THE LEFT HEMISPHERE OF THE CEREBRUM; AND ALSO THE RAMIFICATION OF THE SUPERIOR AND POSTERIOR CEREBELLAR ARTERIES, ARTERIÆ CEREBELLI SUPERIOR ET INFERIOR POSTERIOR (*see Appendix, note* [195]), ON THE UPPER SURFACE OF THE RIGHT HEMISPHERE OF THE CEREBELLUM. THE POSTERIOR SPINAL ARTERY, ARTERIA SPINALIS POSTERIOR; THE VERTEBRAL ARTERY, ARTERIA VERTEBRALIS; AND THE BASILAR ARTERY, ARTERIA BASILARIS.

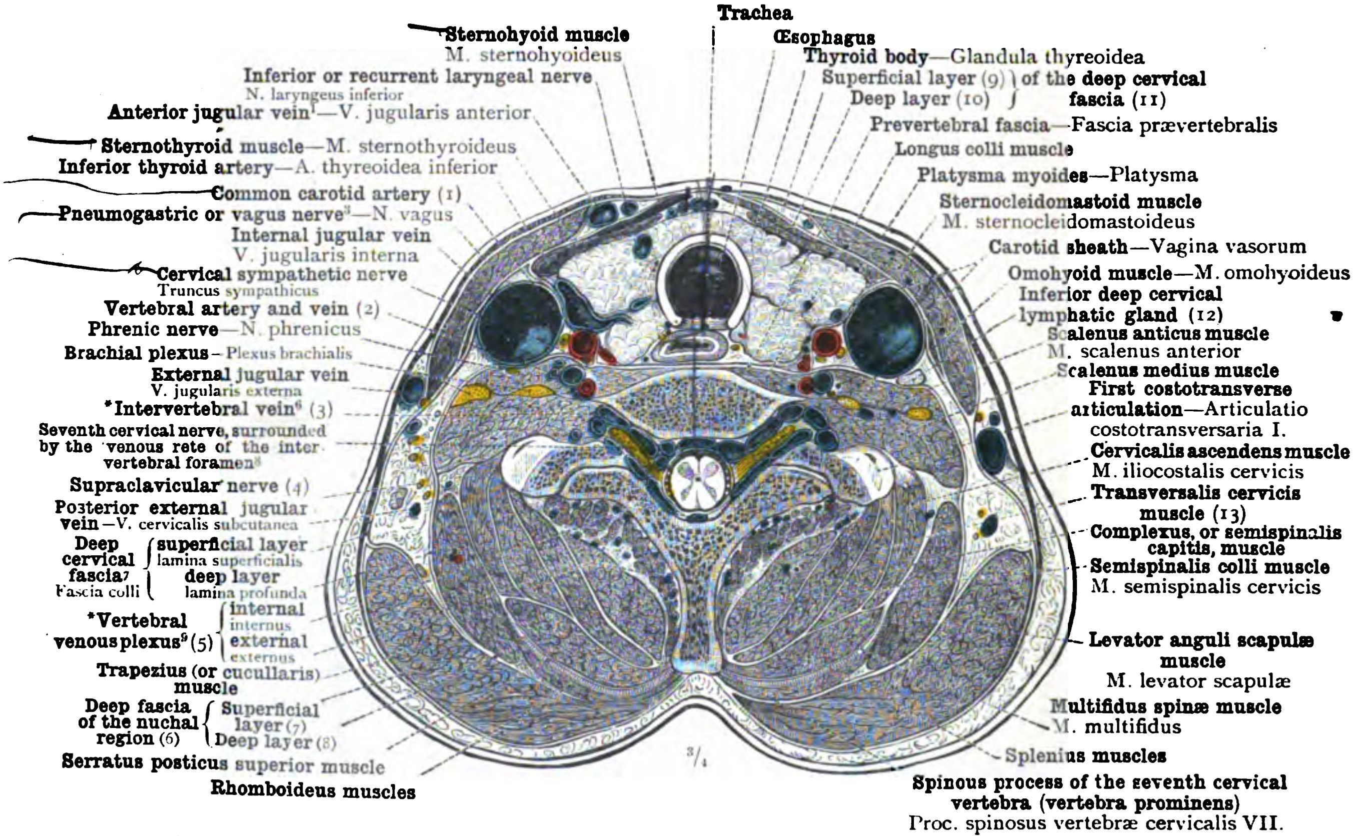
The corpus callosum or great commissure having been divided longitudinally in the median plane, the right hemisphere of the cerebrum was removed by a section passing through its peduncle (the right crus cerebri), in order to display the course and distribution of the anterior and posterior cerebral arteries, arteriæ cerebri anterior et posterior, and also to expose the branches of the posterior cerebral artery that enter the isthmus of the brain as well as those passing to the velum interpositum or tela choroidea superior (tela choroidea ventriculi tertii).

Arteries of the Brain.


Aperture of the glottis—Rima glottidis
Pharyngeal cavity (laryngeal portion) (1)
Prevertebral fascia—Fascia prævertebralis
Anterior jugular vein[1]—V. jugularis anterior
Superior thyroid artery and vein (2)
Descending cervical nerve[2]—Ramus descendens nervi hypoglossi
Common carotid artery
A. carotis communis
Cervical sympathetic nerve (3)
Pneumogastric or vagus nerve[3]
N. vagus
Communicating cervical nerve[4] (4)
Jugular vein external—externa
V. jugularis internal—interna
Deep cervical fascia
Fascia colli
deep layer
lamina profunda
superficial layer
lamina superficialis[4]
Prevertebral fascia—Fascia prævertebralis
Vertebral artery—A. vertebralis
*Longitudinal vertebral sinus[5]
*Sinus vertebralis longitudinalis
Deep cervical or posterior vertebral vein
V. cervicalis profunda
Lateral tubercles of the bifid spinous process of the fourth cervical vertebra
Deep fascia of the nuchal region
Fascia nuchæ
superficial layer
lamina superficialis
deep layer—lamina profunda
Ligamentum nuchæ—Lig. nuchæ
*Median vein of the neck[1]—*V. mediana colli[1]
Sternohyoid muscle—M. sternohyoideus
Sternothyroid muscle—M. sternothyreoideus
Omohyoid muscle—M. omohyoideus
Longus colli muscle
Rectus capitis anticus major muscle
M. longus capitis
Scalenus anticus muscle—M. scalenus anterior
Platysma myoides
Platysma
Carotid sheath—Vagina vasorum
Sternocleidomastoid muscle
M. sternocleidomastoideus
Inferior deep cervical lymphatic glands (5)
Scalenus medius muscle
Cervicalis ascendens muscle
M. iliocostalis cervicis
Transversalis cervicis muscle
M. longissimus cervicis
Trachelomastoid muscle
M. longissimus capitis
Levator anguli scapulæ muscle
M. levator scapulæ
Multifidus spinæ muscle—M. multifidus
Complexus, or semispinalis capitis, muscle
Semispinalis colli muscle
M. semispinalis cervicis
Interspinalis muscle
Spinalis cervicis muscle
Splenius muscles
Trapezius (or cucullaris) muscle
3/4

(1) Cavum pharyngis (pars laryngea) (2) A. et v. thyreoidea superior (3) Truncus sympathicus (4) N. cervicalis descendens
(5) Lymphoglandulæ cervicales profundæ inferiores

FIG. 1015.—TRANSVERSE SECTION THROUGH THE NECK, AT THE LEVEL OF THE APERTURE OF THE GLOTTIS, AND PASSING THROUGH THE BODY OF THE FIFTH CERVICAL VERTEBRA; UPPER SURFACE OF THE LOWER SEGMENT.


Sternohyoid muscle
M. sternohyoideus
Inferior or recurrent laryngeal nerve
N. laryngeus inferior
Anterior jugular vein[1]—V. jugularis anterior
Sternothyroid muscle—M. sternothyroideus
Inferior thyroid artery—A. thyreoidea inferior
Common carotid artery (1)
Pneumogastric or vagus nerve[3]—N. vagus
Internal jugular vein
V. jugularis interna
Cervical sympathetic nerve
Truncus sympathicus
Vertebral artery and vein (2)
Phrenic nerve—N. phrenicus
Brachial plexus—Plexus brachialis
External jugular vein
V. jugularis externa
*Intervertebral vein[6] (3)
Seventh cervical nerve, surrounded by the venous rete of the intervertebral foramen[8]
Supraclavicular nerve (4)
Posterior external jugular vein—V. cervicalis subcutanea
Deep cervical fascia[7]
Fascia colli
superficial layer
lamina superficialis
deep layer
lamina profunda
*Vertebral venous plexus[9] (5)
internal
internus
external
externus
Trapezius (or cucullaris) muscle
Deep fascia of the nuchal region (6)
Superficial layer (7)
Deep layer (8)
Serratus posticus superior muscle
Rhomboideus muscles
Trachea
Œsophagus
Thyroid body—Glandula thyreoidea
Superficial layer (9)
Deep layer (10)
of the deep cervical fascia (11)
Prevertebral fascia—Fascia prævertebralis
Longus colli muscle
Platysma myoides—Platysma
Sternocleidomastoid muscle
M. sternocleidomastoideus
Carotid sheath—Vagina vasorum
Omohyoid muscle—M. omohyoideus
Inferior deep cervical lymphatic gland (12)
Scalenus anticus muscle
M. scalenus anterior
Scalenus medius muscle
First costotransverse articulation—Articulatio costotransversaria I.
Cervicalis ascendens muscle
M. iliocostalis cervicis
Transversalis cervicis muscle (13)
Complexus, or semispinalis capitis, muscle
Semispinalis colli muscle
M. semispinalis cervicis
Levator anguli scapulæ muscle
M. levator scapulæ
Multifidus spinæ muscle
M. multifidus
Splenius muscles
Spinous process of the seventh cervical vertebra (vertebra prominens)
Proc. spinosus vertebræ cervicalis VII.
3/4

(1) A. carotis communis (2) A. et v. vertebralis (3) *V. intervertebralis (4) N. supraclavicularis (5) Plexus venosus vertebrales
(6) Fascia nuchæ (7) Lamina superficialis (8) Lamina profunda (9) Lamina superficialis (10) Lamina profunda
(11) Fasciæ colli (12) Lymphoglandula cervicalis profunda inferior (13) M. longissimus cervicis

FIG. 1016.—TRANSVERSE SECTION THROUGH THE NECK, PASSING THROUGH THE SPINE NEAR THE LOWER SURFACE OF THE BODY OF THE SEVENTH CERVICAL VERTEBRA (VERTEBRA PROMINENS). UPPER SURFACE OF THE LOWER SEGMENT.

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[1] See Appendix, note 197. [2] See Appendix, note 198.

[3] Or *tenth cranial nerve*, according to Soemmerring's enumeration. (According to that of Willis, the *par vagum* of the eighth cranial nerve.)—TR.

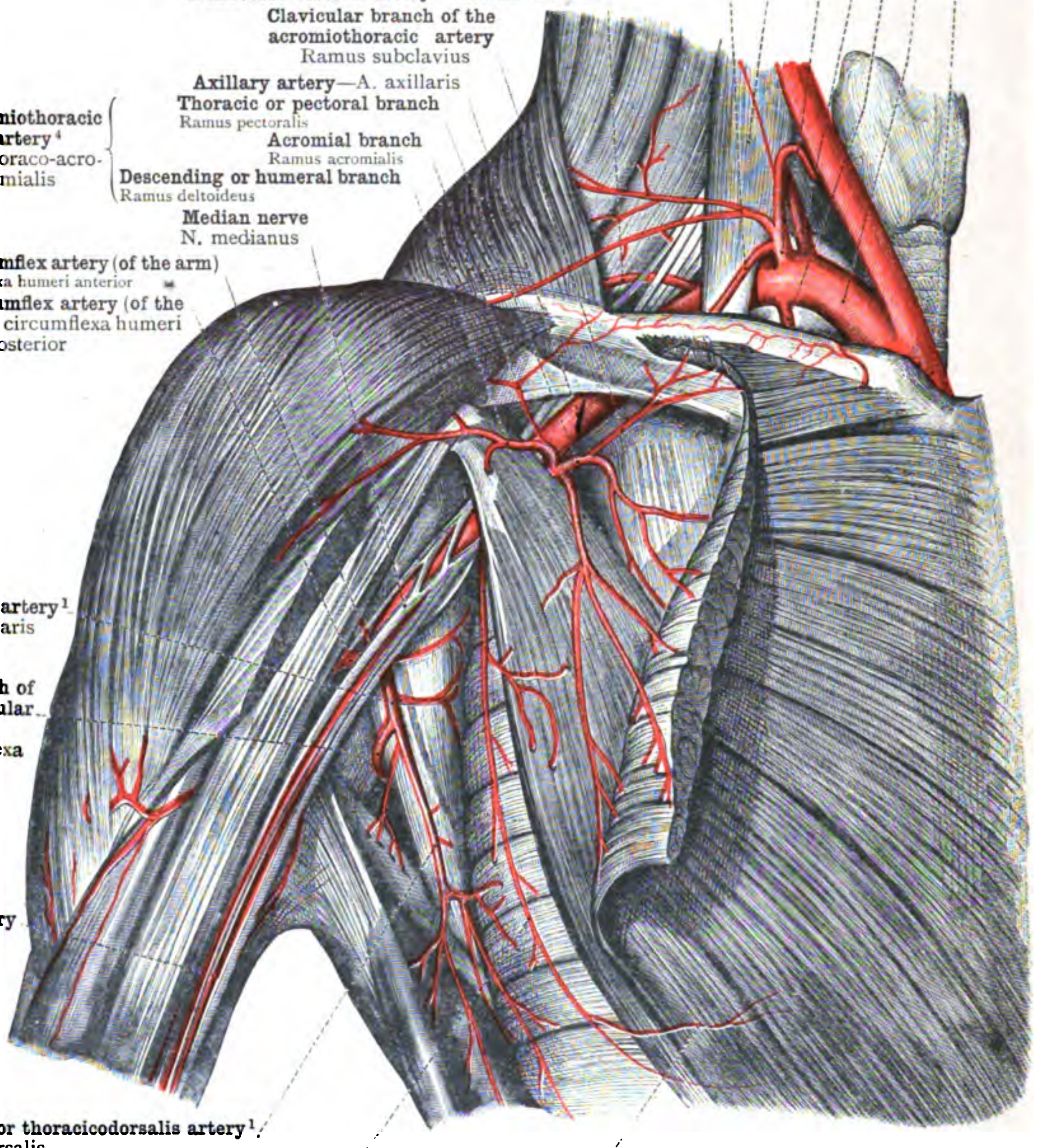
[4] See Appendix, note 199. [5] See Appendix, note 200. [6] See Appendix, note 201. [7] See Appendix, note 202.

[8] See note 5 to p. 667. [9] See note 1 to p. 665.

Topographical Anatomy of the Neck.

ARTERIÆ EXTREMITATUM SUPERIORUM ET INFERIORUM

THE ARTERIES OF THE UPPER AND LOWER EXTREMITIES


Innominate (or brachiocephalic) artery—A. anonyma
Subclavian artery—A. subclavia
Internal mammary artery—A. mammaria interna
Vertebral artery—A. vertebralis
Thyroid axis—Truncus thyreocervicalis
Scalenus anticus muscle—M. scalenus anterior
Suprascapular artery [2]—A. transversa scapulæ
Transverse cervical artery [3]—A. transversa colli
Clavicular branch of the acromiothoracic artery
Ramus subclavius
Axillary artery—A. axillaris
Acromiothoracic artery [4]
A. thoraco-acromialis
Thoracic or pectoral branch
Ramus pectoralis
Acromial branch
Ramus acromialis
Descending or humeral branch
Ramus deltoideus
Median nerve
N. medianus
Anterior circumflex artery (of the arm)
Arteria circumflexa humeri anterior
Posterior circumflex artery (of the arm)—Arteria circumflexa humeri posterior
Subscapular artery [1]
A. subscapularis
Dorsal branch of the subscapular artery [5]
A. circumflexa scapulæ
Brachial artery
A. brachialis
Subscapular or thoracicodorsalis artery [1]
A. thoracodorsalis
Long thoracic artery [6]
A. thoracalis lateralis
External mammary branches [6]
Rami mammarii
1/3

---

[1] See Appendix, note 203.

[2] Known also as the *transverse scapular* or *transverse humeral artery.*

[3] Or *posterior scapular artery* (Macalister). See Appendix, notes 134, 135, 172, and 208.

[4] Called by Macalister the *thoracico-acromial artery.*

[5] Often called the *dorsalis scapulæ* artery. See also Appendix, note 203.

[6] See Appendix, note 204.

FIG. 1017.—RIGHT SUBCLAVIAN AND AXILLARY ARTERIES AND THEIR RELATION TO THE BRACHIAL PLEXUS; SEEN FROM THE FRONT AND THE INNER SIDE. THE DIVISION OF THE INNOMINATE (OR BRACHIOCEPHALIC) ARTERY INTO RIGHT SUBCLAVIAN AND COMMON CAROTID ARTERIES. *THORACIC PORTION OF THE SUBCLAVIAN ARTERY (*see Appendix*, *note* 205), WITH THE ORIGIN OF THE VERTEBRAL ARTERY, THE THYROID AXIS, AND THE INTERNAL MAMMARY ARTERY; THE CERVICAL (THIRD) PORTION OF THE SUBCLAVIAN ARTERY (*see Appendix*, *note* 206), WITH THE ORIGIN OF THE TRANSVERSE CERVICAL ARTERY.

Of the branches of the axillary artery (*see Appendix*, *note* 206) we see: the branches of the acromiothoracic artery, arteria thoraco-acromialis, the thoracic or pectoral branch, ramus pectoralis, the clavicular branch, ramus subclavius, the acromial branch, ramus acromialis, and the descending or humeral branch, ramus deltoideus; the long thoracic artery, arteria thoracalis lateralis; the (long) subscapular artery, arteria subscapularis, and its division into the dorsal scapular artery, arteria circumflexa scapulæ, and the thoracicodorsalis artery, arteria thoracodorsalis (*see Appendix*, *note* 203); the anterior and posterior circumflex arteries (of the arm), arteriæ circumflexæ humeri, anterior et posterior.

A. subclavia, the subclavian artery; A. axillaris, the axillary artery.

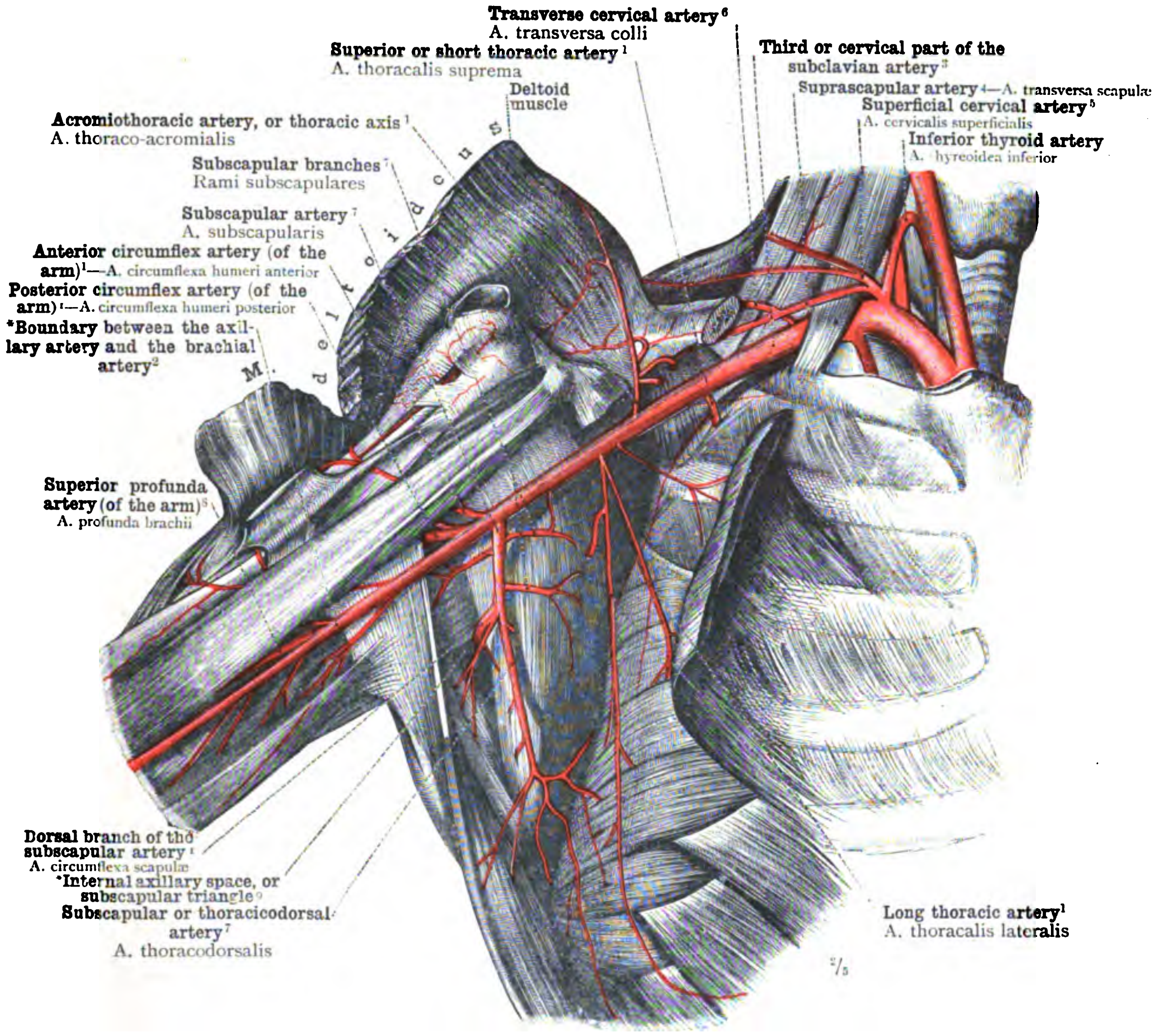

Transverse cervical artery[6]
A. transversa colli
Superior or short thoracic artery[1]
A. thoracalis suprema
Deltoid muscle
Third or cervical part of the subclavian artery[3]
Suprascapular artery[4]—A. transversa scapulæ
Superficial cervical artery[5]
A. cervicalis superficialis
Inferior thyroid artery
A. thyreoidea inferior
Acromiothoracic artery, or thoracic axis[1]
A. thoraco-acromialis
Subscapular branches[7]
Rami subscapulares
Subscapular artery[7]
A. subscapularis
Anterior circumflex artery (of the arm)[1]—A. circumflexa humeri anterior
Posterior circumflex artery (of the arm)[1]—A. circumflexa humeri posterior
*Boundary between the axillary artery and the brachial artery[2]
M. deltoideus
Superior profunda artery (of the arm)[8]
A. profunda brachii
Dorsal branch of the subscapular artery[1]
A. circumflexa scapulæ
*Internal axillary space, or subscapular triangle[9]
Subscapular or thoracicodorsal artery[7]
A. thoracodorsalis
Long thoracic artery[1]
A. thoracalis lateralis
2/3

FIG. 1018.—THE DISTRIBUTION OF THE BRANCHES OF THE AXILLARY ARTERY AS SEEN AFTER THE ANTERIOR WALL OF THE AXILLA AND THE BRACHIAL PLEXUS HAVE BEEN ENTIRELY REMOVED; SEEN FROM THE FRONT AND THE INNER SIDE. THE SUPERIOR OR SHORT THORACIC ARTERY, ARTERIA THORACICA SUPREMA; THE LONG THORACIC ARTERY, ARTERIA THORACALIS LATERALIS; THE ACROMIOTHORACIC ARTERY, OR THORACIC AXIS, ARTERIA THORACO-ACROMIALIS; THE SUBSCAPULAR ARTERY, ARTERIA SUBSCAPULARIS, GIVING OFFSETS TO THE SUBSCAPULARIS MUSCLE, RAMI SUBSCAPULARES, AND DIVIDING (*see Appendix, notes* [203] *and* [206]) INTO THE ARTERIA THORACODORSALIS (CONTINUATION OF THE SUBSCAPULAR ARTERY, OR THORACICODORSAL ARTERY) AND THE ARTERIA CIRCUMFLEXA SCAPULÆ (DORSAL BRANCH OF THE SUBSCAPULAR ARTERY, OR DORSALIS SCAPULÆ ARTERY); THE ANTERIOR AND POSTERIOR CIRCUMFLEX ARTERIES (OF THE ARM), ARTERIÆ CIRCUMFLEXÆ HUMERI ANTERIOR ET POSTERIOR.

In the preparation shown in Fig. 1017, the sternal extremity of the clavicle and the pectoralis major muscle were removed; the pectoralis minor muscle was cut across, its inner segment being turned towards the median line, and the brachial plexus was removed. The arm was abducted, a transverse incision was made into the anterior border of the deltoid muscle, and this muscle was turned outwards, in order to display the course of the anterior circumflex artery (of the arm) and its anterior articular branch. Regarding the branches of the axillary artery, *see Appendix, note* [206]; and regarding the parts of the axillary artery, *see Appendix, note* [207].

A. subclavia, the subclavian artery; A. axillaris, the axillary artery.

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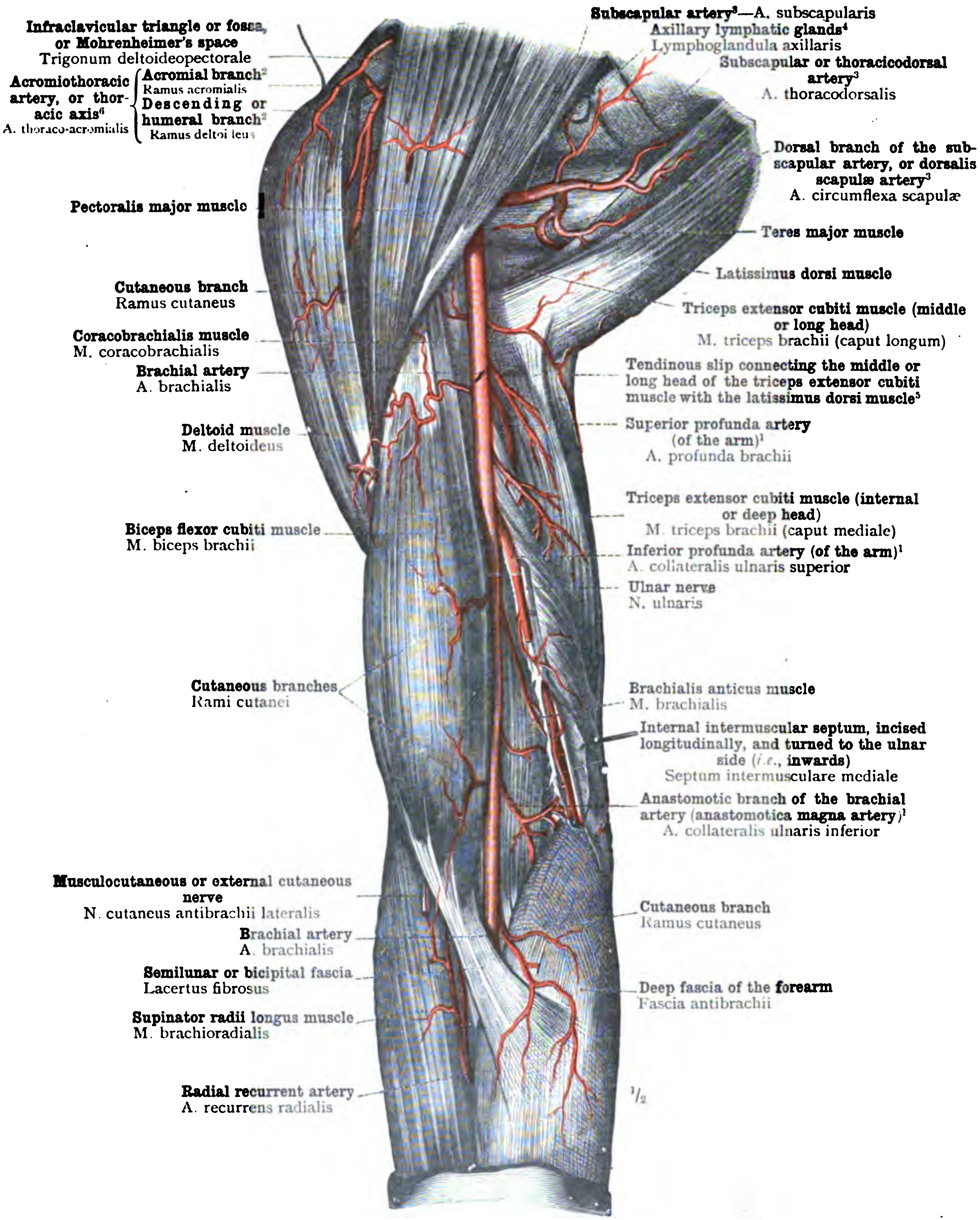
[1] See Appendix, note [206].
[2] See Appendix, note [207].
[3] See Appendix, note [205].
[4] Known also as the *transverse scapular* or *transverse humeral artery*.
[5] See Appendix, note [208].
[6] See Appendix, notes [134], [135], [172], and [208].
[7] See Appendix, notes [203] and [206].
[8] See Appendix, note [209].
[9] See Part III. of this work, p. 312, Fig. 559, and note [1] to same page.


Infraclavicular triangle or fossa, or Mohrenheimer's space
Trigonum deltoideopectorale
Acromiothoracic artery, or thoracic axis[6]
A. thoraco-acromialis
Acromial branch[2]
Ramus acromialis
Descending or humeral branch[2]
Ramus deltoideus
Pectoralis major muscle
Cutaneous branch
Ramus cutaneus
Coracobrachialis muscle
M. coracobrachialis
Brachial artery
A. brachialis
Deltoid muscle
M. deltoideus
Biceps flexor cubiti muscle
M. biceps brachii
Cutaneous branches
Rami cutanei
Musculocutaneous or external cutaneous nerve
N. cutaneus antibrachii lateralis
Brachial artery
A. brachialis
Semilunar or bicipital fascia
Lacertus fibrosus
Supinator radii longus muscle
M. brachioradialis
Radial recurrent artery
A. recurrens radialis
Subscapular artery[3]—A. subscapularis
Axillary lymphatic glands[4]
Lymphoglandula axillaris
Subscapular or thoracicodorsal artery[3]
A. thoracodorsalis
Dorsal branch of the subscapular artery, or dorsalis scapulæ artery[3]
A. circumflexa scapulæ
Teres major muscle
Latissimus dorsi muscle
Triceps extensor cubiti muscle (middle or long head)
M. triceps brachii (caput longum)
Tendinous slip connecting the middle or long head of the triceps extensor cubiti muscle with the latissimus dorsi muscle[5]
Superior profunda artery (of the arm)[1]
A. profunda brachii
Triceps extensor cubiti muscle (internal or deep head)
M. triceps brachii (caput mediale)
Inferior profunda artery (of the arm)[1]
A. collateralis ulnaris superior
Ulnar nerve
N. ulnaris
Brachialis anticus muscle
M. brachialis
Internal intermuscular septum, incised longitudinally, and turned to the ulnar side (i.e., inwards)
Septum intermusculare mediale
Anastomotic branch of the brachial artery (anastomotica magna artery)[1]
A. collateralis ulnaris inferior
Cutaneous branch
Ramus cutaneus
Deep fascia of the forearm
Fascia antibrachii
1/2

---

[1] See Appendix, note 209. [2] See Appendix, note 206. [3] See Appendix, notes 203 and 206.

[4] This, being one of the glands lying on the serratus magnus muscle at the lower border of the pectoral muscles, belongs to the *pectoral* group of *axillary* lymphatic glands (Quain).—Tr.

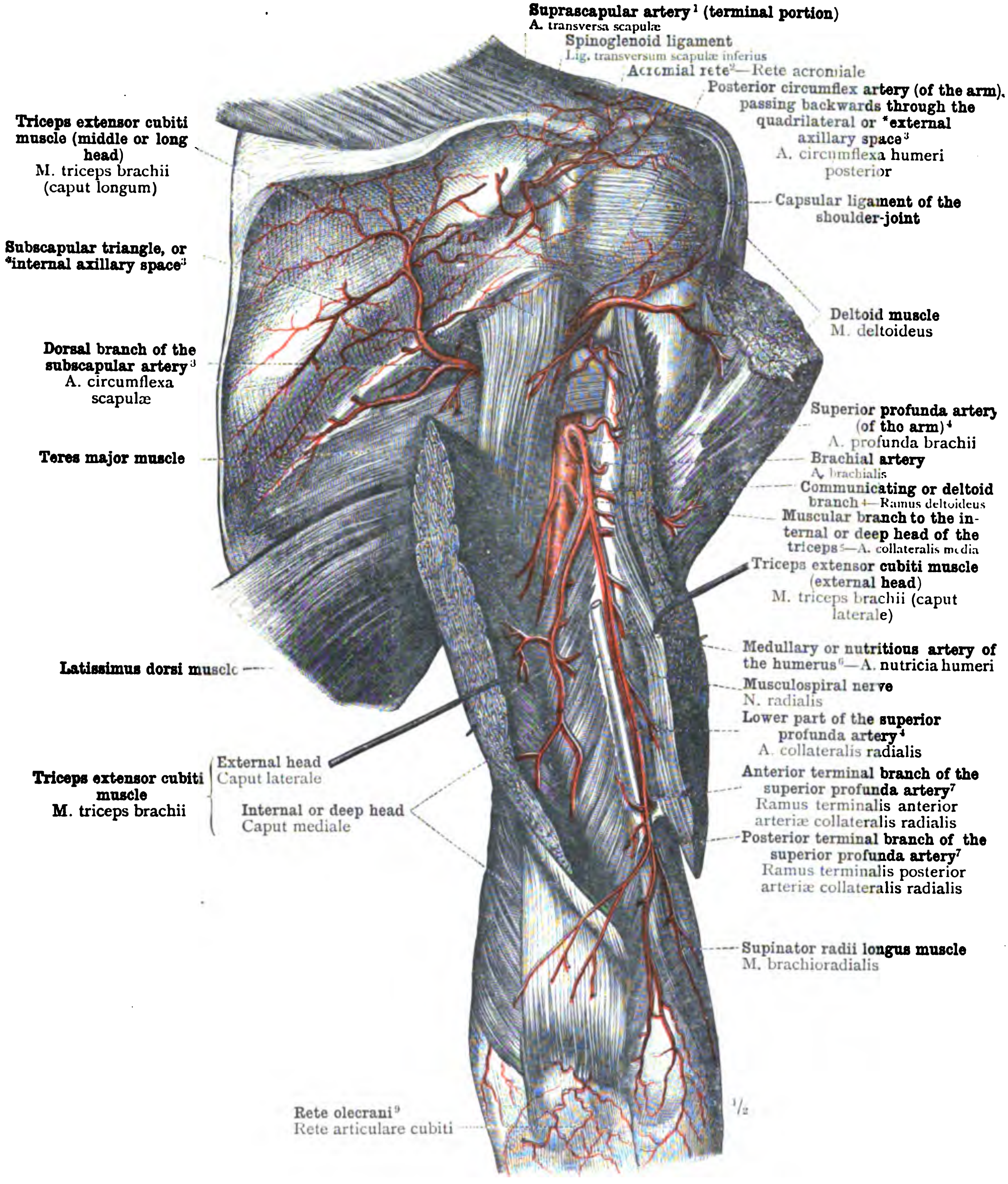
[5] This slip is vestigial in nature, representing the *dorso-epitrochlearis* or *accessorius tricipitis muscle* which is commonly met with in quadrumana, and exists in many other mammals. (See Quain, *op. cit.*, vol. ii., pp. 206 and 221, and Macalister, *op. cit.*, p. 290.)—Tr.

[6] Called by Macalister the *thoracico-acromial artery*. See Appendix, note 206.

FIG. 1019.—THE ARTERIES OF THE RIGHT UPPER ARM, SHOULDER, AND AXILLARY REGION; SEEN FROM THE FRONT AND THE INNER SIDE.

Regarding the branches of the brachial artery, *see Appendix, note* 209; and regarding the upper limit of the brachial artery, *see Appendix, note* 210.

The Arteries of the Upper Arm and the Shoulder.


Suprascapular artery[1] **(terminal portion)**
A. transversa scapulæ
Spinoglenoid ligament
Lig. transversum scapulæ inferius
Acromial rete[2]—Rete acromiale
Posterior circumflex artery (of the arm), passing backwards through the quadrilateral or "external axillary space"[3]
A. circumflexa humeri posterior
Capsular ligament of the shoulder-joint
Deltoid muscle
M. deltoideus
Superior profunda artery (of the arm)[4]
A. profunda brachii
Brachial artery
A. brachialis
Communicating or deltoid branch—Ramus deltoideus
Muscular branch to the internal or deep head of the triceps[5]—A. collateralis media
Triceps extensor cubiti muscle (external head)
M. triceps brachii (caput laterale)
Medullary or nutritious artery of the humerus[6]—A. nutricia humeri
Musculospiral nerve
N. radialis
Lower part of the superior profunda artery[4]
A. collateralis radialis
Anterior terminal branch of the superior profunda artery[7]
Ramus terminalis anterior arteriæ collateralis radialis
Posterior terminal branch of the superior profunda artery[7]
Ramus terminalis posterior arteriæ collateralis radialis
Supinator radii longus muscle
M. brachioradialis
Triceps extensor cubiti muscle (middle or long head)
M. triceps brachii (caput longum)
Subscapular triangle, or "internal axillary space"[3]
Dorsal branch of the subscapular artery[3]
A. circumflexa scapulæ
Teres major muscle
Latissimus dorsi muscle
Triceps extensor cubiti muscle
M. triceps brachii
External head
Caput laterale
Internal or deep head
Caput mediale
Rete olecrani[9]
Rete articulare cubiti
1/2

---

[1] Known also as the *transverse scapular* or *transverse humeral artery*.

[2] See Appendix, note 179.

[3] See note [1] to p. 312 in Part III.

[4] See Appendix, note 209.

[5] Arising in this instance direct from the brachial artery, instead of, as normally, from the superior profunda artery. See Appendix, note 209.

[6] This is the *medullary* or *nutritious branch* of the *superior profunda artery*, not the *chief medullary artery* of the humerus, which enters a foramen somewhat lower down in the shaft of the humerus. See Appendix, note 209.

[7] See Appendix, note 211.

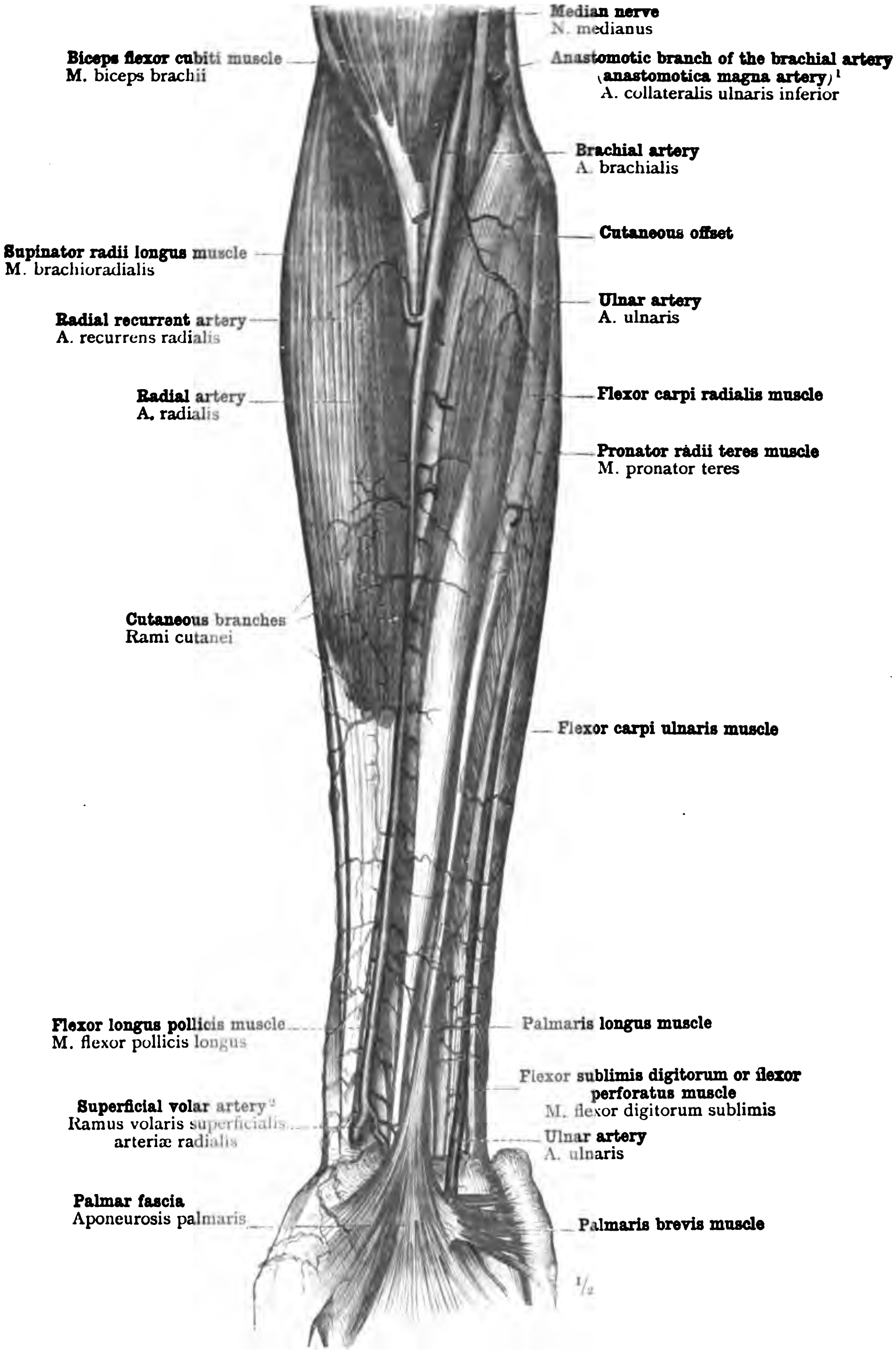
[8] See Appendix, notes 203 and 206.

[9] See Appendix, note 212.

FIG. 1020.—THE DEEP ARTERIES AT THE BACK OF THE RIGHT UPPER ARM AND THE RIGHT SHOULDER; THE ARTERIAL NETWORK OF THE ELBOW, RETE OLECRANI OR RETE ARTICULARE CUBITI (*see Appendix, note* 212).

The posterior part of the deltoid muscle was removed, in addition to the infraspinatus and teres minor muscles, and the external head of the triceps extensor cubiti muscle was divided by a longitudinal incision, the parts being widely separated.

Arteries of the Upper Arm and the Shoulder.

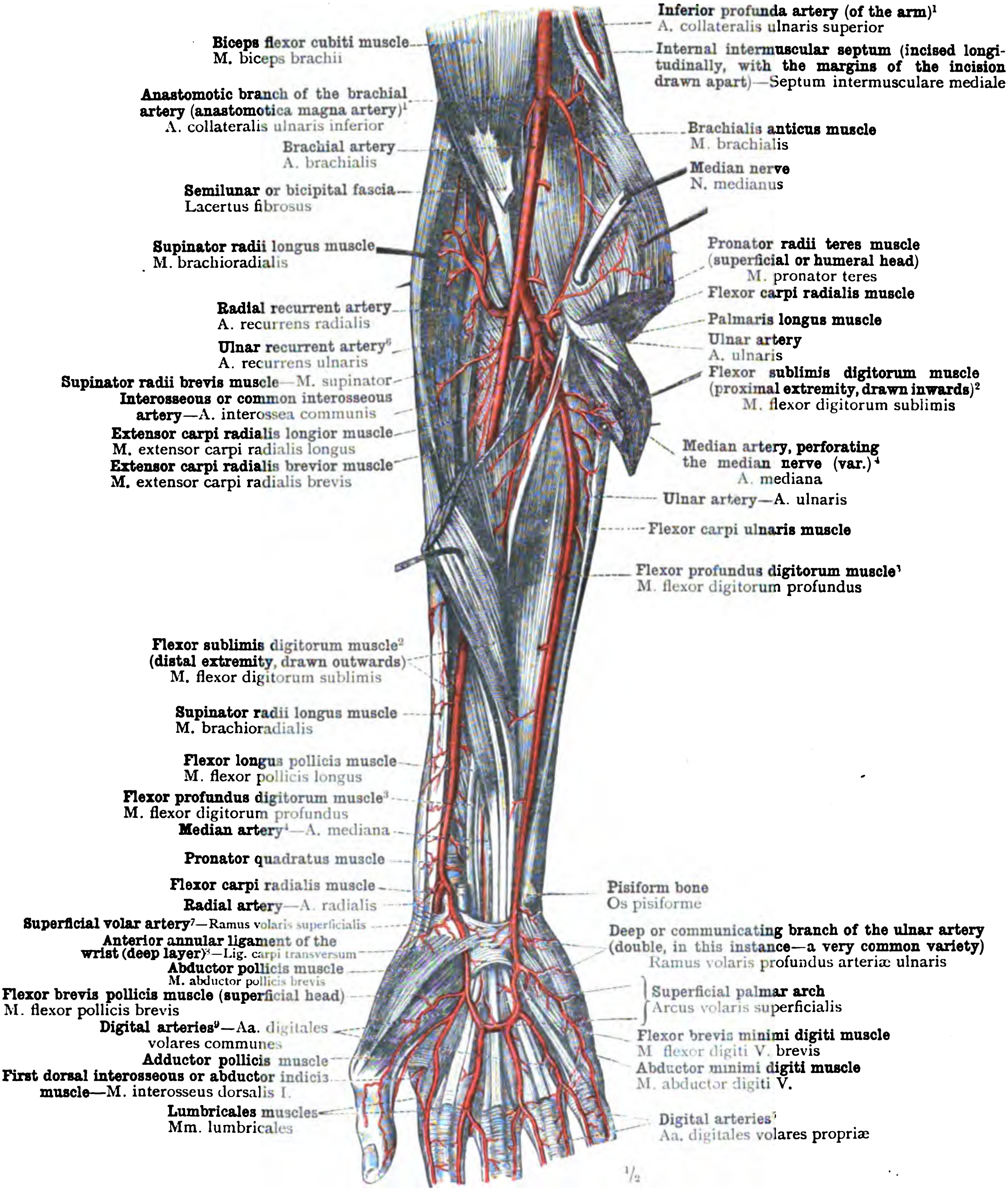

Median nerve
N. medianus
Biceps flexor cubiti muscle
M. biceps brachii
Anastomotic branch of the brachial artery (anastomotica magna artery)[1]
A. collateralis ulnaris inferior
Brachial artery
A. brachialis
Cutaneous offset
Supinator radii longus muscle
M. brachioradialis
Ulnar artery
A. ulnaris
Radial recurrent artery
A. recurrens radialis
Radial artery
A. radialis
Flexor carpi radialis muscle
Pronator radii teres muscle
M. pronator teres
Cutaneous branches
Rami cutanei
Flexor carpi ulnaris muscle
Flexor longus pollicis muscle
M. flexor pollicis longus
Palmaris longus muscle
Flexor sublimis digitorum or flexor perforatus muscle
M. flexor digitorum sublimis
Superficial volar artery[2]
Ramus volaris superficialis arteriæ radialis
Ulnar artery
A. ulnaris
Palmar fascia
Aponeurosis palmaris
Palmaris brevis muscle
1/2

[1] See Appendix, note 202.

[2] Often known in England by the Latin name of *superficialis volæ artery*.—TR.

FIG. 1021.—THE SUPERFICIAL ARTERIES OF THE ANTECUBITAL FOSSA AND THE PALMAR SURFACE OF THE RIGHT FOREARM.

Palmar Arteries of the Forearm and the Hand.


Inferior profunda artery (of the arm)[1]
A. collateralis ulnaris superior
Biceps flexor cubiti muscle
M. biceps brachii
Internal intermuscular septum (incised longitudinally, with the margins of the incision drawn apart)—Septum intermusculare mediale
Anastomotic branch of the brachial artery (anastomotica magna artery)[1]
A. collateralis ulnaris inferior
Brachial artery
A. brachialis
Brachialis anticus muscle
M. brachialis
Median nerve
N. medianus
Semilunar or bicipital fascia
Lacertus fibrosus
Supinator radii longus muscle
M. brachioradialis
Pronator radii teres muscle (superficial or humeral head)
M. pronator teres
Flexor carpi radialis muscle
Radial recurrent artery
A. recurrens radialis
Palmaris longus muscle
Ulnar artery
A. ulnaris
Ulnar recurrent artery[6]
A. recurrens ulnaris
Flexor sublimis digitorum muscle (proximal extremity, drawn inwards)[2]
M. flexor digitorum sublimis
Supinator radii brevis muscle—M. supinator
Interosseous or common interosseous artery—A. interossea communis
Extensor carpi radialis longior muscle
M. extensor carpi radialis longus
Extensor carpi radialis brevior muscle
M. extensor carpi radialis brevis
Median artery, perforating the median nerve (var.)[4]
A. mediana
Ulnar artery—A. ulnaris
Flexor carpi ulnaris muscle
Flexor profundus digitorum muscle[3]
M. flexor digitorum profundus
Flexor sublimis digitorum muscle[2] (distal extremity, drawn outwards)
M. flexor digitorum sublimis
Supinator radii longus muscle
M. brachioradialis
Flexor longus pollicis muscle
M. flexor pollicis longus
Flexor profundus digitorum muscle[3]
M. flexor digitorum profundus
Median artery[4]—A. mediana
Pronator quadratus muscle
Flexor carpi radialis muscle
Pisiform bone
Os pisiforme
Radial artery—A. radialis
Superficial volar artery[7]—Ramus volaris superficialis
Deep or communicating branch of the ulnar artery (double, in this instance—a very common variety)
Ramus volaris profundus arteriæ ulnaris
Anterior annular ligament of the wrist (deep layer)[8]—Lig. carpi transversum
Abductor pollicis muscle
M. abductor pollicis brevis
Superficial palmar arch
Arcus volaris superficialis
Flexor brevis pollicis muscle (superficial head)
M. flexor pollicis brevis
Digital arteries[9]—Aa. digitales volares communes
Flexor brevis minimi digiti muscle
M. flexor digiti V. brevis
Adductor pollicis muscle
Abductor minimi digiti muscle
M. abductor digiti V.
First dorsal interosseous or abductor indicis muscle—M. interosseus dorsalis I.
Lumbricales muscles
Mm. lumbricales
Digital arteries[5]
Aa. digitales volares propriæ
1/2

[1] See Appendix, note 209.

[2] Or *flexor perforatus* muscle.

[3] Or *flexor perforans* muscle.

[4] *Median Artery.*—Called by Macalister *comes nervi mediani artery.*

[5] Or *collateral digital arteries*, see Appendix, note 213.

[6] The *anterior ulnar recurrent artery* and the *posterior ulnar recurrent artery* are here seen arising by a common stem. This variety is of frequent occurrence.—Tr.

[7] See note 2 to p. 632.

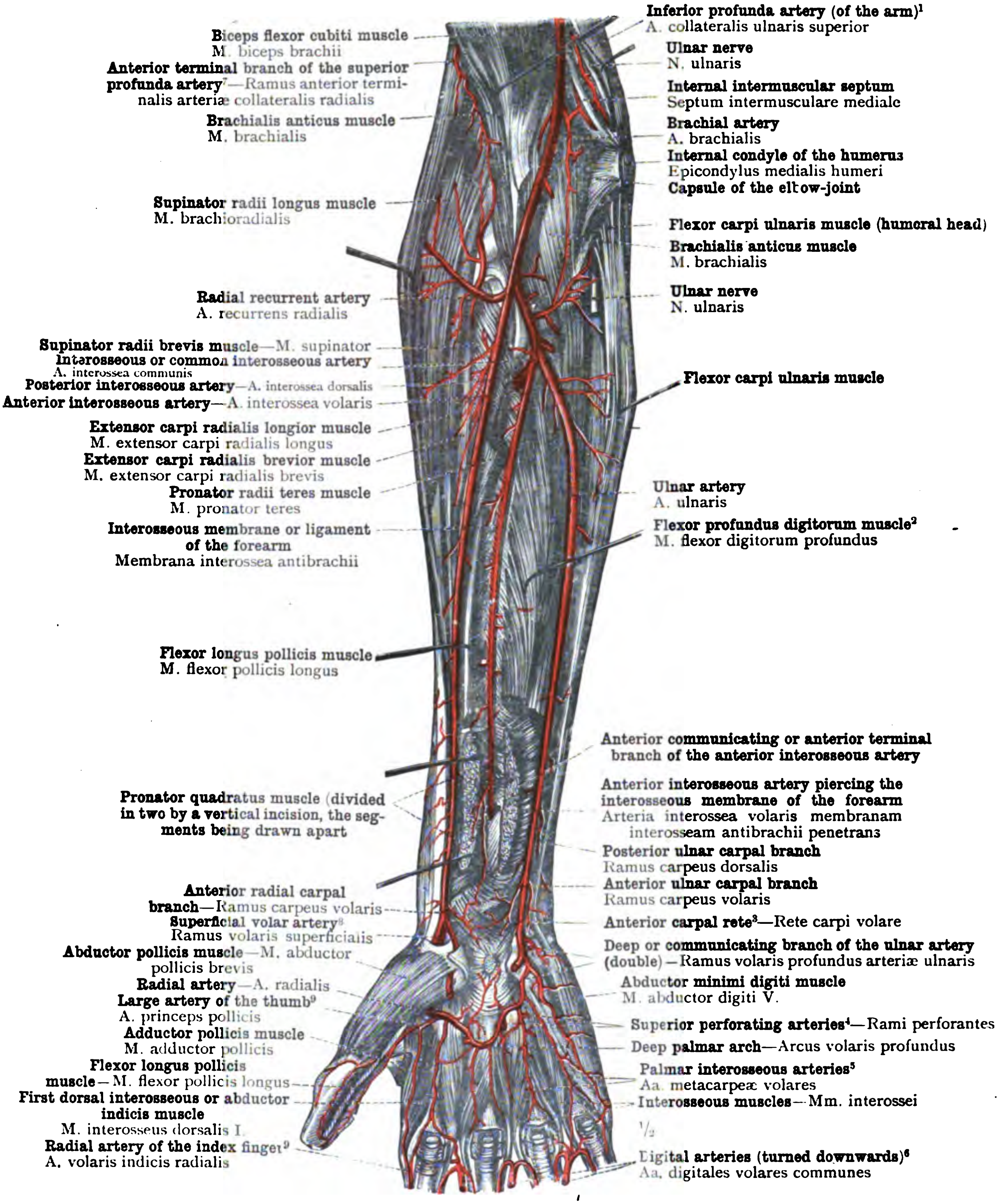
[8] See Appendix, note 214.

[9] See Appendix, note 213.

FIG. 1022.—THE RADIAL AND ULNAR ARTERIES AND THE SUPERFICIAL PALMAR ARCH.

The unusually large median artery (comes nervi mediani artery) perforates in this specimen the median nerve.

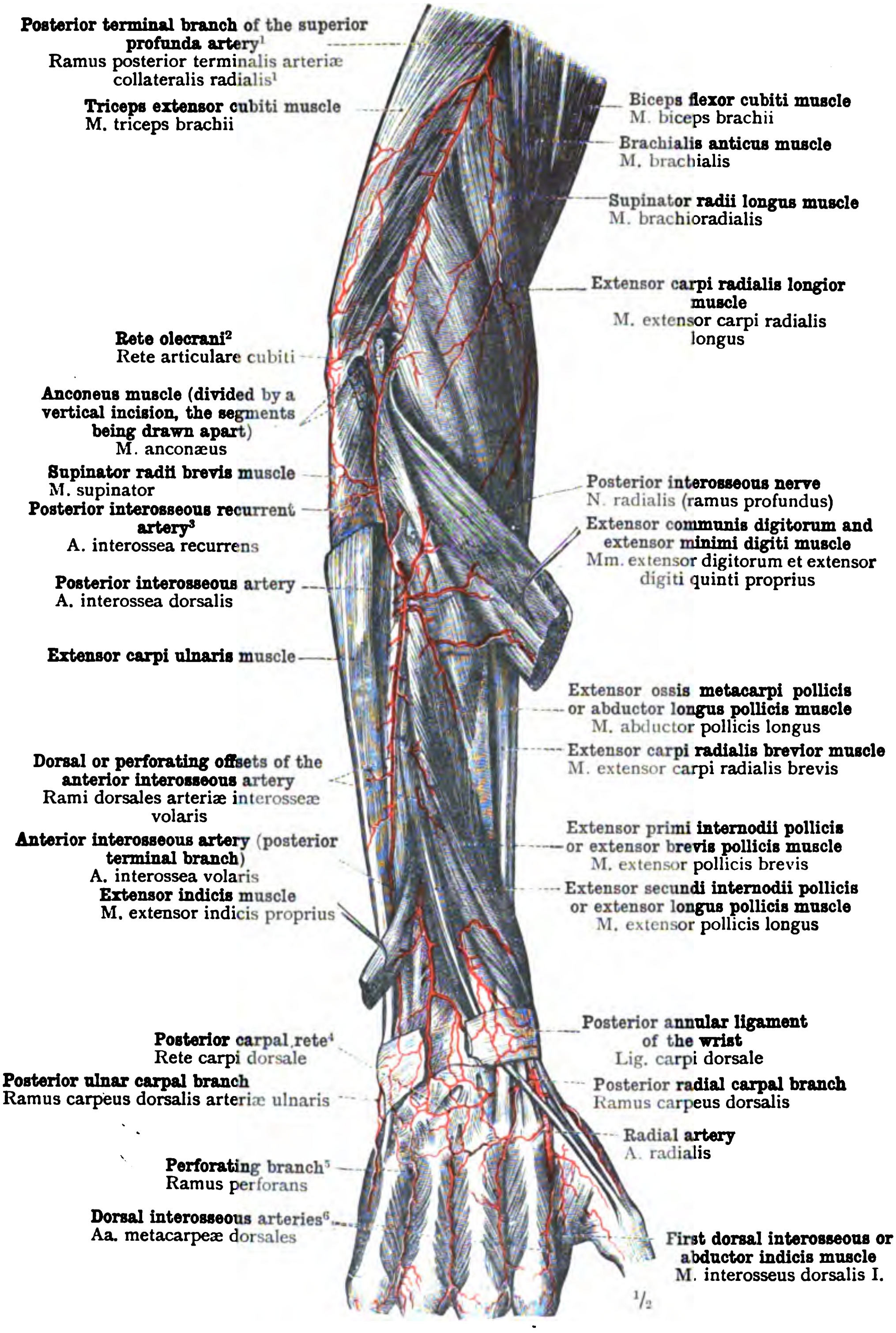
Palmar Arteries of the Forearm and Hand.


Biceps flexor cubiti muscle
M. biceps brachii
Anterior terminal branch of the superior profunda artery[7]—Ramus anterior terminalis arteriæ collateralis radialis
Brachialis anticus muscle
M. brachialis
Supinator radii longus muscle
M. brachioradialis
Radial recurrent artery
A. recurrens radialis
Supinator radii brevis muscle—M. supinator
Interosseous or common interosseous artery
A. interossea communis
Posterior interosseous artery—A. interossea dorsalis
Anterior interosseous artery—A. interossea volaris
Extensor carpi radialis longior muscle
M. extensor carpi radialis longus
Extensor carpi radialis brevior muscle
M. extensor carpi radialis brevis
Pronator radii teres muscle
M. pronator teres
Interosseous membrane or ligament of the forearm
Membrana interossea antibrachii
Flexor longus pollicis muscle
M. flexor pollicis longus
Pronator quadratus muscle (divided in two by a vertical incision, the segments being drawn apart
Anterior radial carpal branch—Ramus carpeus volaris
Superficial volar artery[8]
Ramus volaris superficialis
Abductor pollicis muscle—M. abductor pollicis brevis
Radial artery—A. radialis
Large artery of the thumb[9]
A. princeps pollicis
Adductor pollicis muscle
M. adductor pollicis
Flexor longus pollicis muscle—M. flexor pollicis longus
First dorsal interosseous or abductor indicis muscle
M. interosseus dorsalis I
Radial artery of the index finger[9]
A. volaris indicis radialis
Inferior profunda artery (of the arm)[1]
A. collateralis ulnaris superior
Ulnar nerve
N. ulnaris
Internal intermuscular septum
Septum intermusculare mediale
Brachial artery
A. brachialis
Internal condyle of the humerus
Epicondylus medialis humeri
Capsule of the elbow-joint
Flexor carpi ulnaris muscle (humeral head)
Brachialis anticus muscle
M. brachialis
Ulnar nerve
N. ulnaris
Flexor carpi ulnaris muscle
Ulnar artery
A. ulnaris
Flexor profundus digitorum muscle[2]
M. flexor digitorum profundus
Anterior communicating or anterior terminal branch of the anterior interosseous artery
Anterior interosseous artery piercing the interosseous membrane of the forearm
Arteria interossea volaris membranam interosseam antibrachii penetrans
Posterior ulnar carpal branch
Ramus carpeus dorsalis
Anterior ulnar carpal branch
Ramus carpeus volaris
Anterior carpal rete[3]—Rete carpi volare
Deep or communicating branch of the ulnar artery (double)—Ramus volaris profundus arteriæ ulnaris
Abductor minimi digiti muscle
M. abductor digiti V.
Superior perforating arteries[4]—Rami perforantes
Deep palmar arch—Arcus volaris profundus
Palmar interosseous arteries[5]
Aa. metacarpeæ volares
Interosseous muscles—Mm. interossei
½
Digital arteries (turned downwards)[6]
Aa. digitales volares communes

[1] See Appendix, note 209.
[2] Or *flexor perforans* muscle.
[3] See Appendix, note 215.
[4] See Appendix, note 216.
[5] Called by Macalister the *descending digital branches* of the *deep palmar arch*.
[6] See Appendix, note 213.
[7] See Appendix, note 217.
[8] See note [2] to p. 632.
[9] See Appendix, note 218.

FIG. 1023.—THE ANTERIOR INTEROSSEOUS ARTERY OF THE RIGHT FOREARM AND THE DEEP PALMAR ARCH; SEEN FROM BEFORE.

Palmar Arteries of the Forearm and Hand.


Posterior terminal branch of the superior profunda artery[1]
Ramus posterior terminalis arteriæ collateralis radialis[1]
Triceps extensor cubiti muscle
M. triceps brachii
Rete olecrani[2]
Rete articulare cubiti
Anconeus muscle (divided by a vertical incision, the segments being drawn apart)
M. anconæus
Supinator radii brevis muscle
M. supinator
Posterior interosseous recurrent artery[3]
A. interossea recurrens
Posterior interosseous artery
A. interossea dorsalis
Extensor carpi ulnaris muscle
Dorsal or perforating offsets of the anterior interosseous artery
Rami dorsales arteriæ interosseæ volaris
Anterior interosseous artery (posterior terminal branch)
A. interossea volaris
Extensor indicis muscle
M. extensor indicis proprius
Posterior carpal rete[4]
Rete carpi dorsale
Posterior ulnar carpal branch
Ramus carpeus dorsalis arteriæ ulnaris
Perforating branch[5]
Ramus perforans
Dorsal interosseous arteries[6]
Aa. metacarpeæ dorsales
Biceps flexor cubiti muscle
M. biceps brachii
Brachialis anticus muscle
M. brachialis
Supinator radii longus muscle
M. brachioradialis
Extensor carpi radialis longior muscle
M. extensor carpi radialis longus
Posterior interosseous nerve
N. radialis (ramus profundus)
Extensor communis digitorum and extensor minimi digiti muscle
Mm. extensor digitorum et extensor digiti quinti proprius
Extensor ossis metacarpi pollicis or abductor longus pollicis muscle
M. abductor pollicis longus
Extensor carpi radialis brevior muscle
M. extensor carpi radialis brevis
Extensor primi internodii pollicis or extensor brevis pollicis muscle
M. extensor pollicis brevis
Extensor secundi internodii pollicis or extensor longus pollicis muscle
M. extensor pollicis longus
Posterior annular ligament of the wrist
Lig. carpi dorsale
Posterior radial carpal branch
Ramus carpeus dorsalis
Radial artery
A. radialis
First dorsal interosseous or abductor indicis muscle
M. interosseus dorsalis I.
1/2

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[1] See Appendix, note 217.

[2] See Appendix, note 212.

[3] Often called the *interosseous recurrent* artery without further qualification, as the anterior interosseous artery gives no recurrent branch.—Tr.

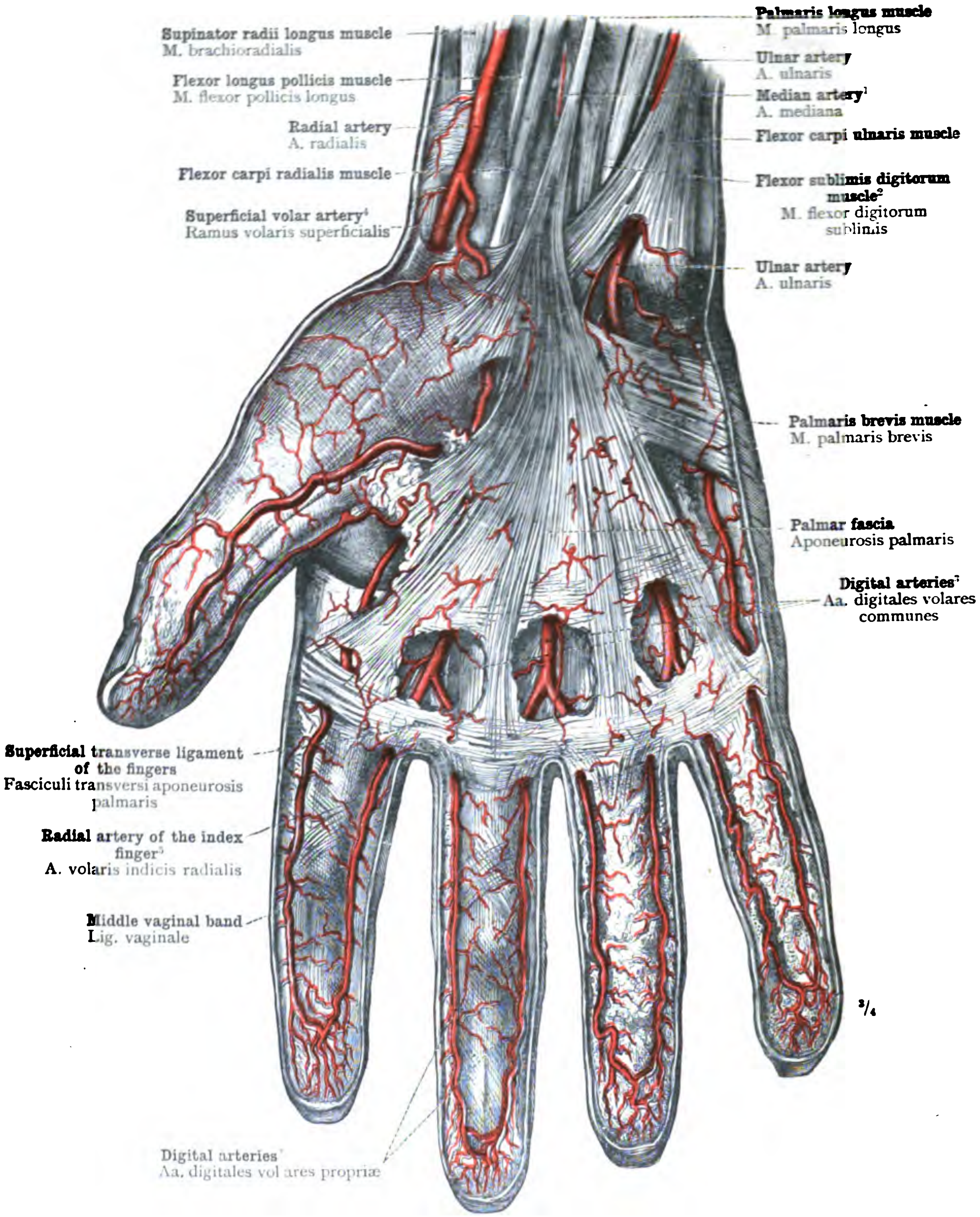
[4] See Appendix, note 29.

[5] See Appendix, note 216.

[6] See Appendix, note 220.

FIG. 1024.—ARTERIÆ INTEROSSEA DORSALIS ET INTEROSSEA RECURRENS, THE POSTERIOR INTEROSSEOUS AND POSTERIOR INTEROSSEOUS RECURRENT ARTERIES; THE POSTERIOR OR POSTERIOR TERMINAL BRANCH OF THE ANTERIOR INTEROSSEOUS ARTERY, ARTERIA INTEROSSEA VOLARIS; THE DEEP ARTERIES OF THE DORSUM OF THE HAND

Dorsal Arteries of the Forearm and Hand.

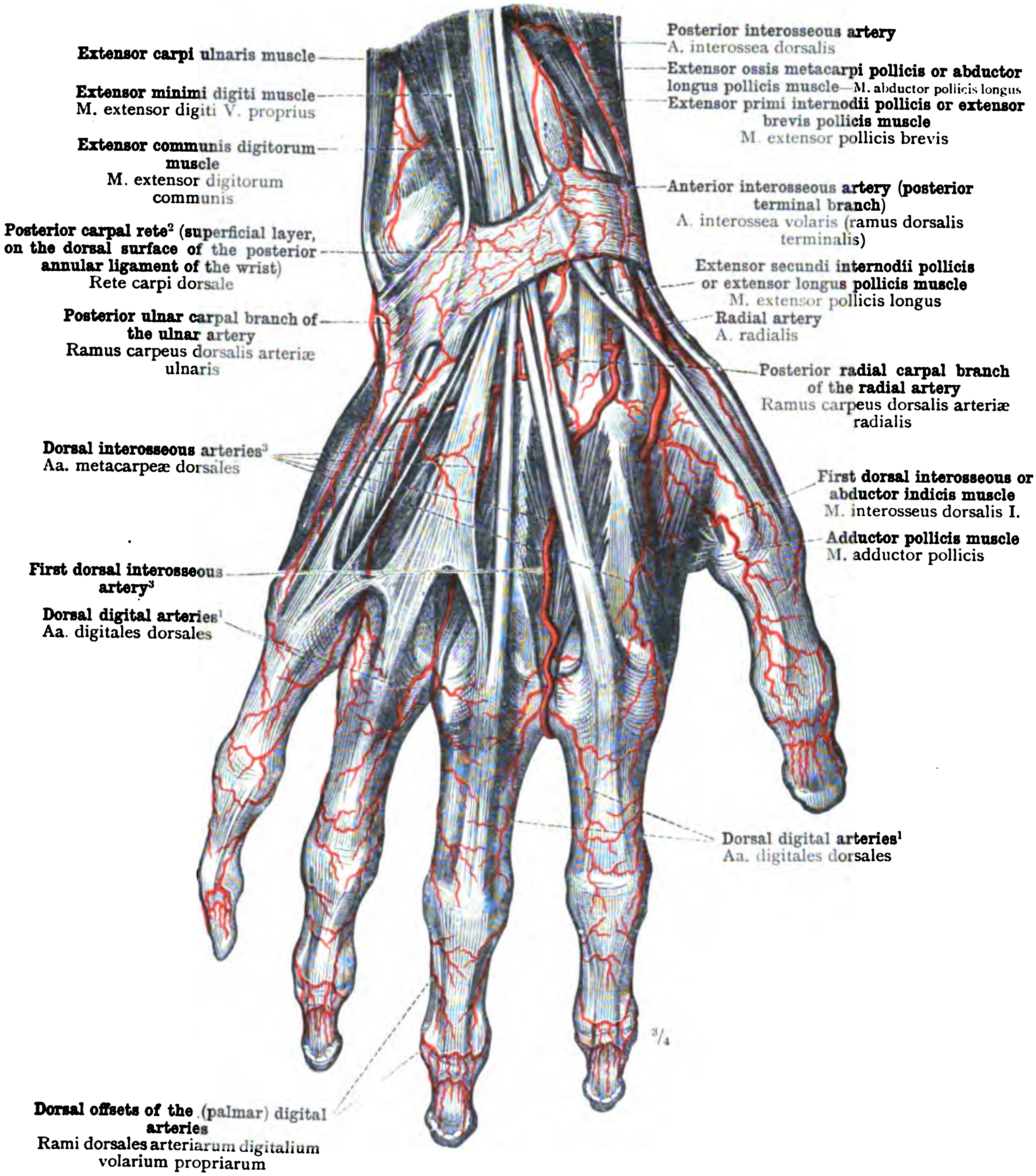

Supinator radii longus muscle
M. brachioradialis
Flexor longus pollicis muscle
M. flexor pollicis longus
Radial artery
A. radialis
Flexor carpi radialis muscle
Superficial volar artery[4]
Ramus volaris superficialis
Palmaris longus muscle
M. palmaris longus
Ulnar artery
A. ulnaris
Median artery[1]
A. mediana
Flexor carpi ulnaris muscle
Flexor sublimis digitorum muscle[2]
M. flexor digitorum sublimis
Ulnar artery
A. ulnaris
Palmaris brevis muscle
M. palmaris brevis
Palmar fascia
Aponeurosis palmaris
Digital arteries[3]
Aa. digitales volares communes
Superficial transverse ligament of the fingers
Fasciculi transversi aponeurosis palmaris
Radial artery of the index finger[5]
A. volaris indicis radialis
Middle vaginal band
Lig. vaginale
3/4
Digital arteries[6]
Aa. digitales vol ares propriæ

[1] Called by Macalister *comes nervi mediani artery.*
[2] Or *flexor perforatus* muscle.
[3] See Appendix, note 213.
[4] See note 3 to p. 632.
[5] See Appendix, note 218.
[6] Or *collateral digital arteries.* See Appendix, note 213.

FIG. 1025.—THE SUPERFICIAL ARTERIES OF THE PALM OF THE HAND; THE PALMAR DIGITAL ARTERIES.

In the thumb, the index, and the middle finger, the skin and the superficial fascia have been removed, thus exposing the digital sheaths of the flexor tendons (ligamenta vaginalia, etc.). In the ring and little fingers, the superficial fascia and the arteries ramifying in it have been preserved.

Arteries of the Palm of the Hand.


Extensor carpi ulnaris muscle
Extensor minimi digiti muscle
M. extensor digiti V. proprius
Extensor communis digitorum muscle
M. extensor digitorum communis
Posterior carpal rete[2] **(superficial layer, on the dorsal surface of the posterior annular ligament of the wrist)**
Rete carpi dorsale
Posterior ulnar carpal branch of the ulnar artery
Ramus carpeus dorsalis arteriæ ulnaris
Dorsal interosseous arteries[3]
Aa. metacarpeæ dorsales
First dorsal interosseous artery[3]
Dorsal digital arteries[1]
Aa. digitales dorsales
Dorsal offsets of the (palmar) digital arteries
Rami dorsales arteriarum digitalium volarium propriarum
Posterior interosseous artery
A. interossea dorsalis
Extensor ossis metacarpi pollicis or abductor longus pollicis muscle—M. abductor pollicis longus
Extensor primi internodii pollicis or extensor brevis pollicis muscle
M. extensor pollicis brevis
Anterior interosseous artery (posterior terminal branch)
A. interossea volaris (ramus dorsalis terminalis)
Extensor secundi internodii pollicis or extensor longus pollicis muscle
M. extensor pollicis longus
Radial artery
A. radialis
Posterior radial carpal branch of the radial artery
Ramus carpeus dorsalis arteriæ radialis
First dorsal interosseous or abductor indicis muscle
M. interosseus dorsalis I.
Adductor pollicis muscle
M. adductor pollicis
Dorsal digital arteries[1]
Aa. digitales dorsales
3/4

---

[1] These minute vessels are often ignored by English anatomists. See Appendix, note 213.—Tr.

[2] See Appendix, note 219.

[3] The *first dorsal interosseous artery* is called by Macalister the *metacarpal branch* of the *radial artery*. For the origin of this and of the other dorsal interosseous arteries, see Appendix, note 220.—Tr.

Fig. 1026.—The Superficial Arteries of the Dorsum of the Hand: the Radial Artery, Arteria Radialis; the Posterior Radial Carpal Artery, Ramus Carpeus Dorsalis Arteriæ Radialis, and the Posterior Ulnar Carpal Artery, Ramus Carpeus Dorsalis Arteriæ Ulnaris; the Posterior Terminal Branch of the Anterior Interosseous Artery, Ramus Dorsalis Terminalis Arteriæ Interosseæ Volaris; the Superficial Layer of the Posterior Carpal Rete, Lamina Superficialis Retis Carpi Dorsalis; the Dorsal Interosseous Arteries, Arteriæ Metacarpeæ Dorsales; that occupying the Back of the Second Space (First Dorsal Interosseous Artery, according to Quain; Metacarpal Branch of the Radial Artery, according to Macalister) is unusually large (a Common Variety). The Dorsal Digital Arteries, Arteriæ Digitales Dorsales, and the Dorsal Offsets of the Palmar Digital Arteries, Rami Dorsales Arteriarum Digitalium Volarium Propriarum. The Right Hand with the Distal Extremity of the Forearm; seen from Behind.

Arteries of the Dorsum of the Hand.

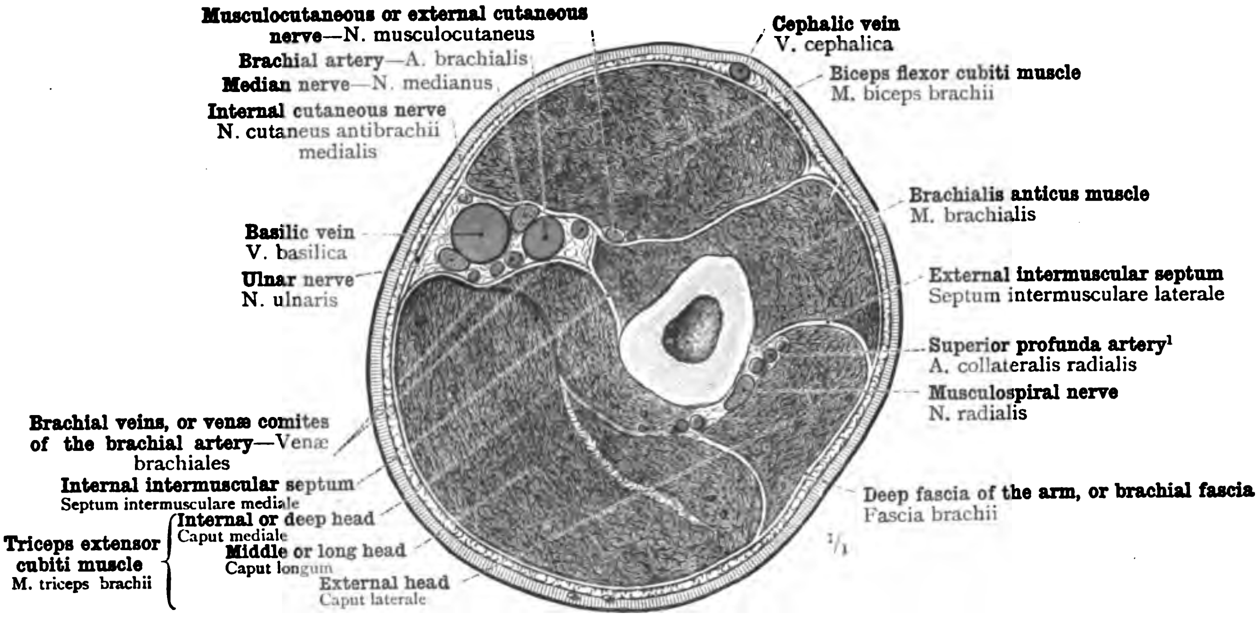

Musculocutaneous or external cutaneous nerve—N. musculocutaneus
Brachial artery—A. brachialis
Median nerve—N. medianus
Internal cutaneous nerve
N. cutaneus antibrachii medialis
Basilic vein
V. basilica
Ulnar nerve
N. ulnaris
Brachial veins, or venæ comites of the brachial artery—Venæ brachiales
Internal intermuscular septum
Septum intermusculare mediale
Triceps extensor cubiti muscle
M. triceps brachii
Internal or deep head
Caput mediale
Middle or long head
Caput longum
External head
Caput laterale
Cephalic vein
V. cephalica
Biceps flexor cubiti muscle
M. biceps brachii
Brachialis anticus muscle
M. brachialis
External intermuscular septum
Septum intermusculare laterale
Superior profunda artery¹
A. collateralis radialis
Musculospiral nerve
N. radialis
Deep fascia of the arm, or brachial fascia
Fascia brachii
¹/₁

FIG. 1027.—TRANSVERSE SECTION THROUGH THE MIDDLE OF THE RIGHT UPPER ARM; UPPER SURFACE OF LOWER SEGMENT.

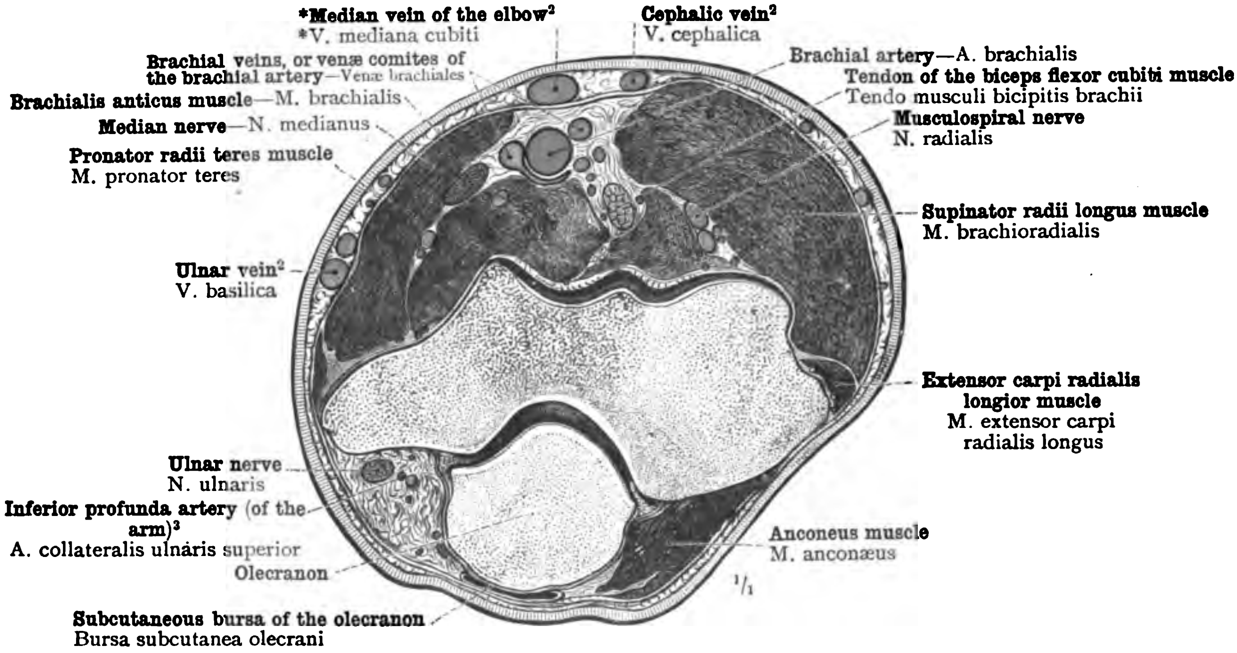

***Median vein of the elbow**²
*V. mediana cubiti
Cephalic vein²
V. cephalica
Brachial veins, or venæ comites of the brachial artery—Venæ brachiales
Brachialis anticus muscle—M. brachialis
Median nerve—N. medianus
Pronator radii teres muscle
M. pronator teres
Ulnar vein²
V. basilica
Ulnar nerve
N. ulnaris
Inferior profunda artery (of the arm)³
A. collateralis ulnáris superior
Olecranon
Subcutaneous bursa of the olecranon
Bursa subcutanea olecrani
Brachial artery—A. brachialis
Tendon of the biceps flexor cubiti muscle
Tendo musculi bicipitis brachii
Musculospiral nerve
N. radialis
Supinator radii longus muscle
M. brachioradialis
Extensor carpi radialis longior muscle
M. extensor carpi radialis longus
Anconeus muscle
M. anconæus
¹/₁

FIG. 1028.—TRANSVERSE SECTION THROUGH THE EXTENDED ELBOW-JOINT AT THE LEVEL OF THE TWO CONDYLES; UPPER SURFACE OF LOWER SEGMENT.

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[1] See Appendix, notes 209 and 217.

[2] See Appendix, note 221.

[3] See Appendix, note 209.

Topographical Anatomy of the Upper Arm and the Elbow.

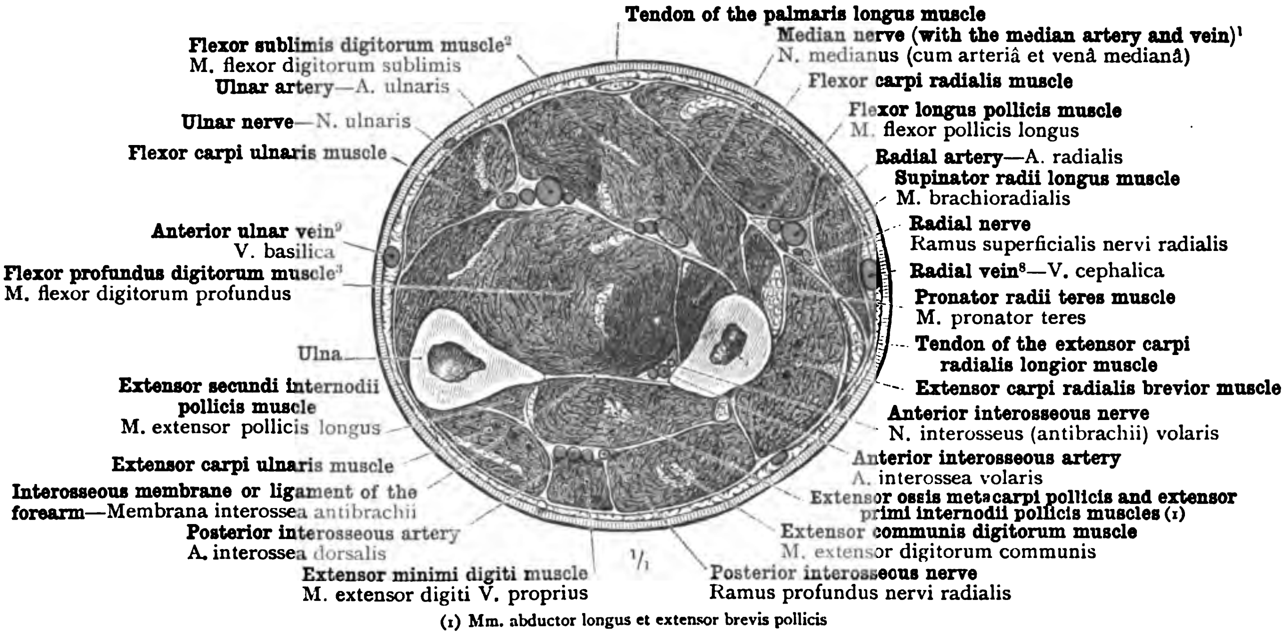

Tendon of the palmaris longus muscle
Median nerve (with the median artery and vein)¹
N. medianus (cum arteriâ et venâ medianâ)
Flexor carpi radialis muscle
Flexor longus pollicis muscle
M. flexor pollicis longus
Radial artery—A. radialis
Supinator radii longus muscle
M. brachioradialis
Radial nerve
Ramus superficialis nervi radialis
Radial vein⁸—V. cephalica
Pronator radii teres muscle
M. pronator teres
Tendon of the extensor carpi radialis longior muscle
Extensor carpi radialis brevior muscle
Anterior interosseous nerve
N. interosseus (antibrachii) volaris
Anterior interosseous artery
A. interossea volaris
Extensor ossis metacarpi pollicis and extensor primi internodii pollicis muscles (1)
Extensor communis digitorum muscle
M. extensor digitorum communis
Posterior interosseous nerve
Ramus profundus nervi radialis
Flexor sublimis digitorum muscle²
M. flexor digitorum sublimis
Ulnar artery—A. ulnaris
Ulnar nerve—N. ulnaris
Flexor carpi ulnaris muscle
Anterior ulnar vein⁹
V. basilica
Flexor profundus digitorum muscle³
M. flexor digitorum profundus
Ulna
Extensor secundi internodii pollicis muscle
M. extensor pollicis longus
Extensor carpi ulnaris muscle
Interosseous membrane or ligament of the forearm—Membrana interossea antibrachii
Posterior interosseous artery
A. interossea dorsalis
Extensor minimi digiti muscle
M. extensor digiti V. proprius
1/1
(1) Mm. abductor longus et extensor brevis pollicis

FIG. 1029.—TRANSVERSE SECTION THROUGH THE RIGHT FOREARM, A LITTLE ABOVE THE MIDDLE OF ITS VERTICAL EXTENT (AT THE LEVEL OF THE INSERTION OF THE PRONATOR RADII TERES MUSCLE); UPPER SURFACE OF LOWER SEGMENT.

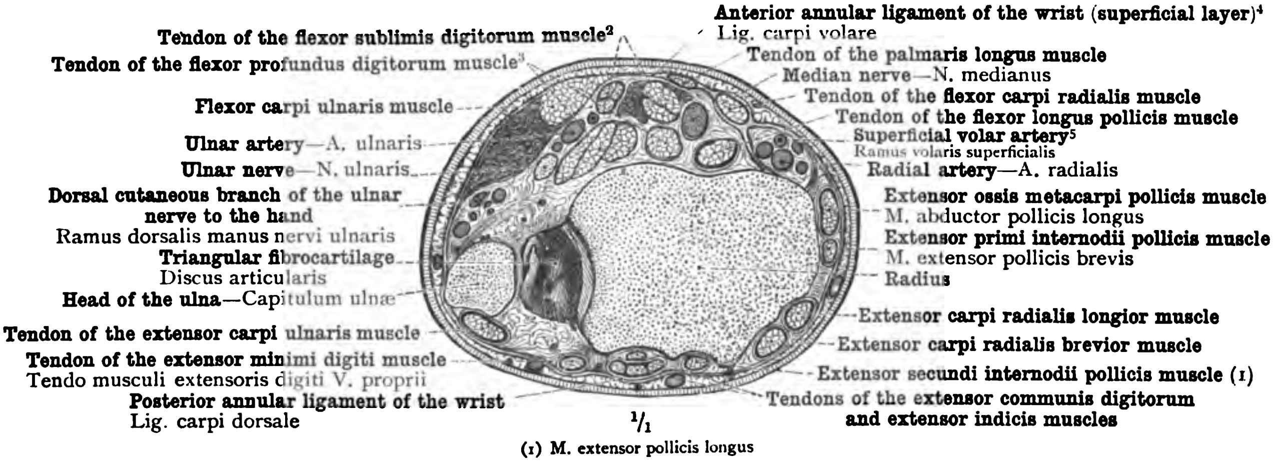

Anterior annular ligament of the wrist (superficial layer)⁴
Lig. carpi volare
Tendon of the palmaris longus muscle
Median nerve—N. medianus
Tendon of the flexor carpi radialis muscle
Tendon of the flexor longus pollicis muscle
Superficial volar artery⁵
Ramus volaris superficialis
Radial artery—A. radialis
Extensor ossis metacarpi pollicis muscle
M. abductor pollicis longus
Extensor primi internodii pollicis muscle
M. extensor pollicis brevis
Radius
Extensor carpi radialis longior muscle
Extensor carpi radialis brevior muscle
Extensor secundi internodii pollicis muscle (1)
Tendons of the extensor communis digitorum and extensor indicis muscles
Tendon of the flexor sublimis digitorum muscle²
Tendon of the flexor profundus digitorum muscle³
Flexor carpi ulnaris muscle
Ulnar artery—A. ulnaris
Ulnar nerve—N. ulnaris
Dorsal cutaneous branch of the ulnar nerve to the hand
Ramus dorsalis manus nervi ulnaris
Triangular fibrocartilage
Discus articularis
Head of the ulna—Capitulum ulnæ
Tendon of the extensor carpi ulnaris muscle
Tendon of the extensor minimi digiti muscle
Tendo musculi extensoris digiti V. proprii
Posterior annular ligament of the wrist
Lig. carpi dorsale
1/1
(1) M. extensor pollicis longus

FIG. 1030.—TRANSVERSE SECTION THROUGH THE DISTAL EXTREMITY OF THE RIGHT FOREARM, UPPER SURFACE OF LOWER SEGMENT.

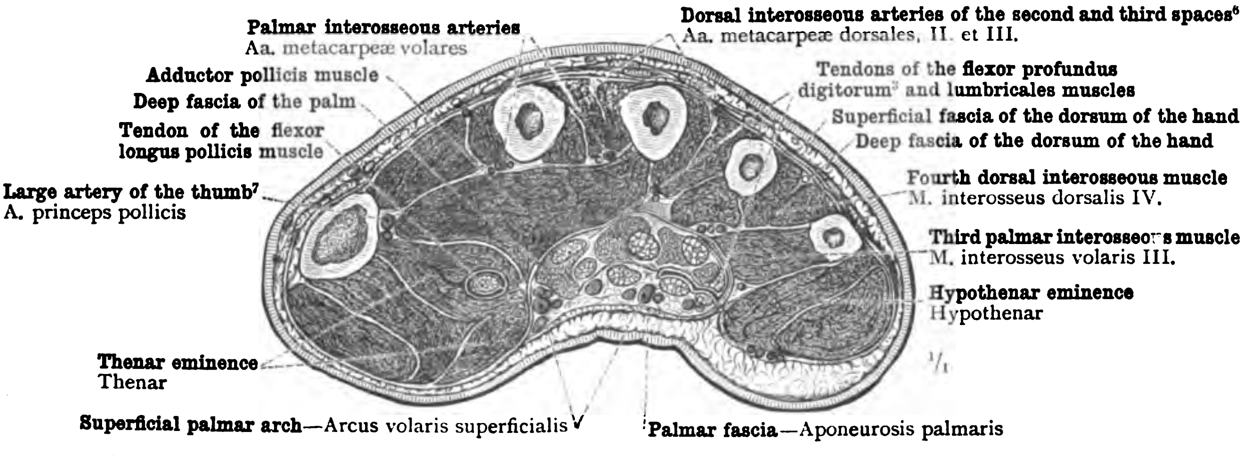

Palmar interosseous arteries
Aa. metacarpeæ volares
Dorsal interosseous arteries of the second and third spaces⁶
Aa. metacarpeæ dorsales, II. et III.
Tendons of the flexor profundus digitorum³ and lumbricales muscles
Superficial fascia of the dorsum of the hand
Deep fascia of the dorsum of the hand
Fourth dorsal interosseous muscle
M. interosseus dorsalis IV.
Third palmar interosseous muscle
M. interosseus volaris III.
Hypothenar eminence
Hypothenar
1/1
Adductor pollicis muscle
Deep fascia of the palm
Tendon of the flexor longus pollicis muscle
Large artery of the thumb⁷
A. princeps pollicis
Thenar eminence
Thenar
Superficial palmar arch—Arcus volaris superficialis
Palmar fascia—Aponeurosis palmaris

FIG. 1031.—TRANSVERSE SECTION THROUGH THE RIGHT HAND, IMMEDIATELY BELOW THE BASES OF THE METACARPAL BONES; UPPER SURFACE OF LOWER SEGMENT.

---

[1] *Median Artery.*—Called by Macalister *comes nervi mediani artery.*

[2] Or *flexor perforatus* muscle.

[3] Or *flexor perforans* muscle.

[4] See Appendix, note ²¹⁴.

[5] See note ² to p. 632.

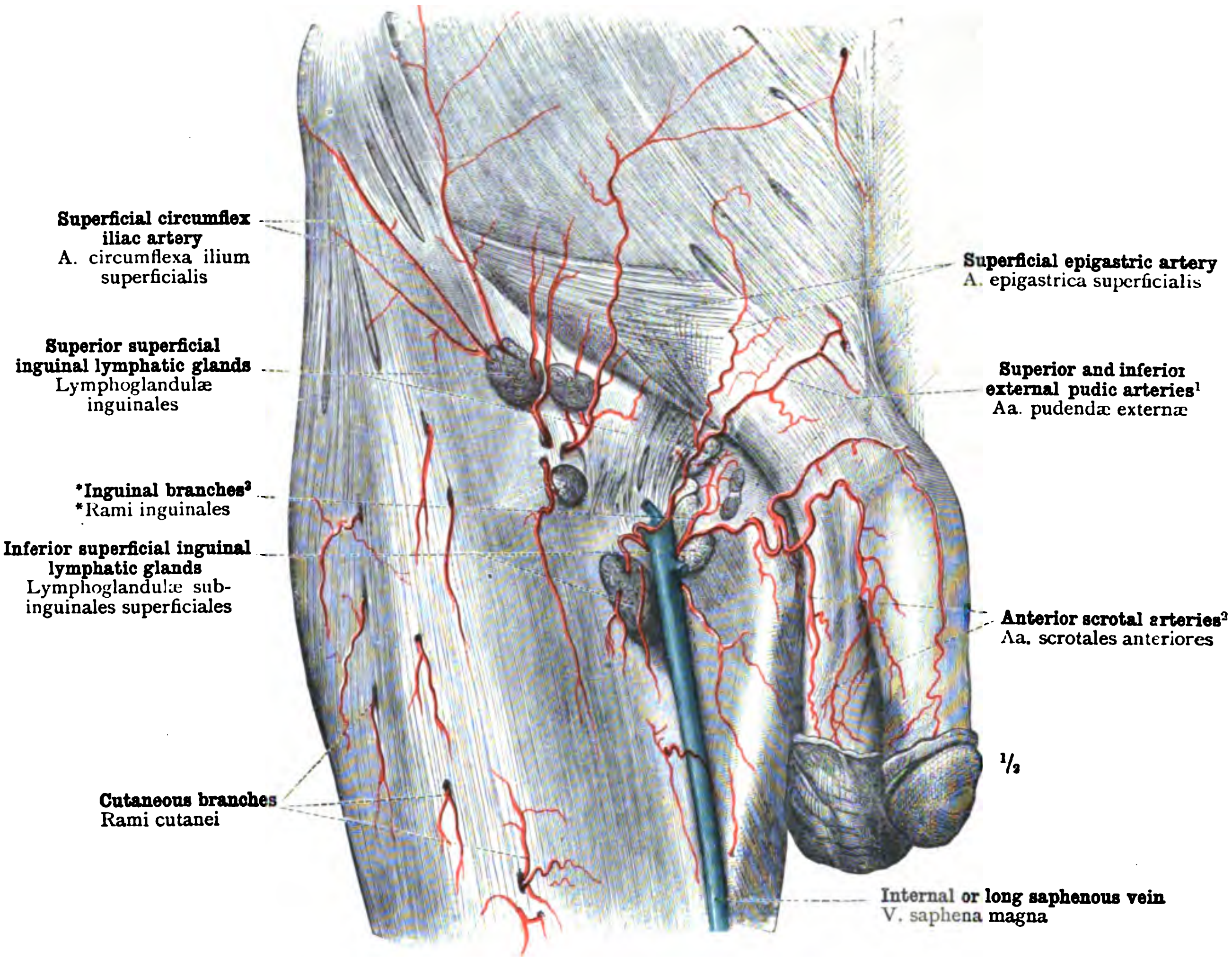
[6] See Appendix, note ²²².

[7] See Appendix, note ²¹⁸.

[8] See note ¹ to p. 697.

[9] See note ² to p. 697.

Topographical Anatomy of the Forearm and Hand.


Superficial circumflex iliac artery
A. circumflexa ilium superficialis
Superior superficial inguinal lymphatic glands
Lymphoglandulæ inguinales
*Inguinal branches³
*Rami inguinales
Inferior superficial inguinal lymphatic glands
Lymphoglandulæ subinguinales superficiales
Cutaneous branches
Rami cutanei
Superficial epigastric artery
A. epigastrica superficialis
Superior and inferior external pudic arteries¹
Aa. pudendæ externæ
Anterior scrotal arteries²
Aa. scrotales anteriores
1/2
Internal or long saphenous vein
V. saphena magna

[1] The upper of these is named by Macalister the *superior* or *superficial pubic*, the lower, the *inferior pubic artery*.—Tr.

[2] See Appendix, note 133.

[3] *Rami Inguinales*.—According to Von Langer and Toldt (*op. cit.*, p. 525) there are **inguinal branches* of the *femoral artery*, to the skin and superficial lymphatic glands of this region, in addition to the four superficial branches of the femoral artery commonly enumerated, viz., *superficial epigastric*, *superficial circumflex iliac*, and *superior* and *inferior external pudic* arteries (see note [1] above). Quain does not mention independent inguinal branches, stating that the four superficial branches just enumerated all give small branches to the lymphatic glands in the groin. Macalister mentions an additional superficial branch of the femoral artery in Scarpa's triangle, the *saphenous*, "one, two, or three branches descending to the skin and lymphatic glands external to the saphena vein" (*op. cit.*, p. 486). These *saphenous* branches are in part identical with the *rami inguinales* of Toldt.—Tr.

[4] Often called *femoral lymphatic glands*.

[5] *Subinguinal Fossa*.—"Immediately below Poupart's ligament, a slight hollow is generally seen, corresponding to Scarpa's triangular space, in which, just internal to the centre, the femoral artery may be felt pulsating." (Quain, *op. cit.*, "Appendix on Superficial and Surgical Anatomy," p. 43). Though this author describes the hollow in question, he gives it no distinctive name, and I have therefore used a translation of Toldt's name of *fossa subinguinalis*.—Tr.

Fig. 1032.—The Subcutaneous Arteries of the Hypogastric Region (Regio Hypogastrica), the Inguinal Region, the Male External Generative Organs, the Subinguinal Fossa (*see note* [5] *above*) and the Adjoining Regions of the Right Thigh; the Superior and Inferior Superficial Inguinal Lymphatic Glands and the Proximal Portion of the Internal or Long Saphenous Vein; seen from Before.

The cribriform fascia (fascia cribrosa), the intercolumnar or spermatic fascia (fascia cremasterica Cooperi), and the deep fascia of the penis, have been left intact.

Arteries of the Front of the Thigh.

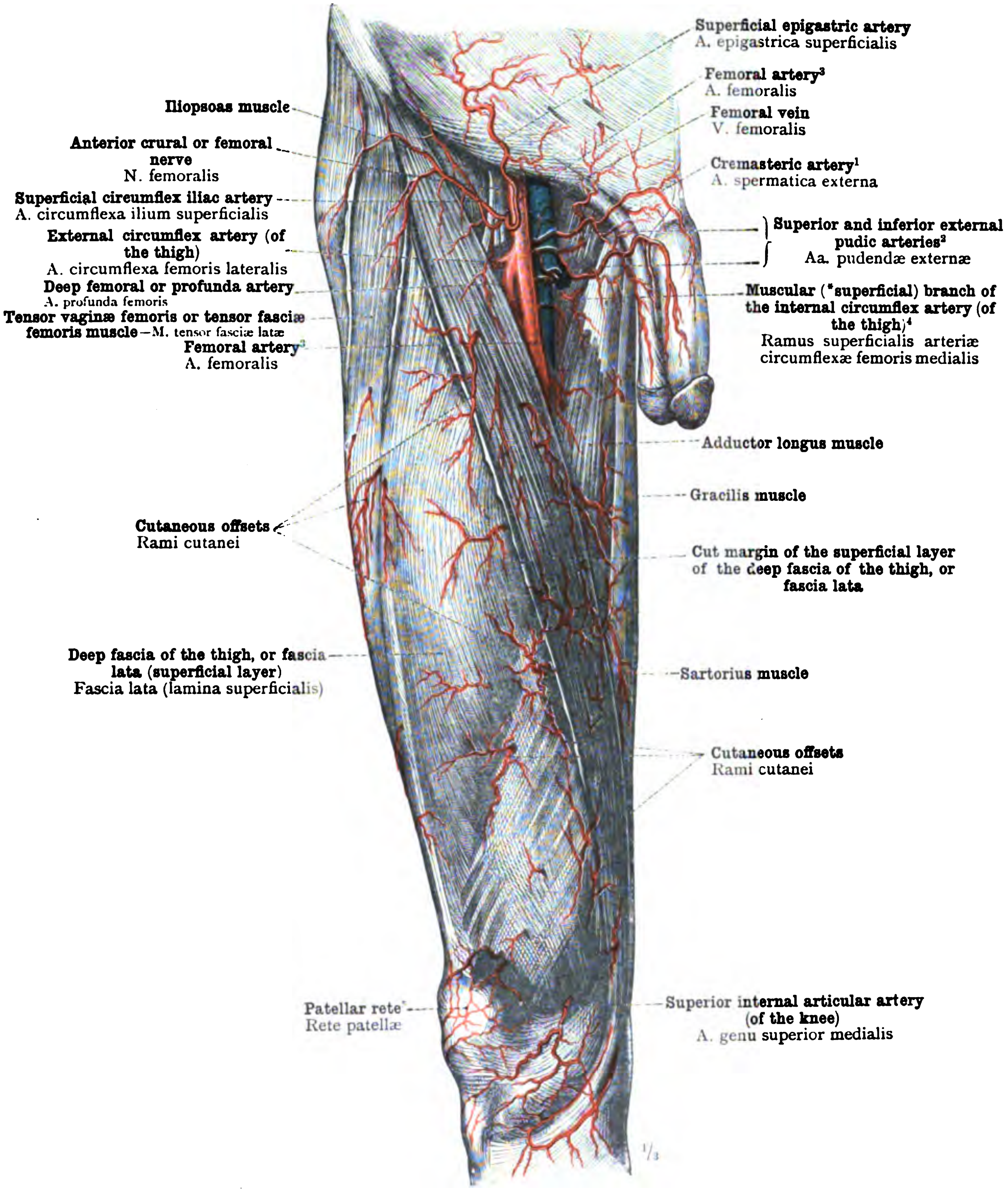

Superficial epigastric artery
A. epigastrica superficialis
Femoral artery[3]
A. femoralis
Femoral vein
V. femoralis
Cremasteric artery[1]
A. spermatica externa
Superior and inferior external pudic arteries[2]
Aa. pudendæ externæ
Muscular (*superficial) branch of the internal circumflex artery (of the thigh)[4]
Ramus superficialis arteriæ circumflexæ femoris medialis
Iliopsoas muscle
Anterior crural or femoral nerve
N. femoralis
Superficial circumflex iliac artery
A. circumflexa ilium superficialis
External circumflex artery (of the thigh)
A. circumflexa femoris lateralis
Deep femoral or profunda artery
A. profunda femoris
Tensor vaginæ femoris or tensor fasciæ femoris muscle—M. tensor fasciæ latæ
Femoral artery[3]
A. femoralis
Adductor longus muscle
Gracilis muscle
Cutaneous offsets
Rami cutanei
Cut margin of the superficial layer of the deep fascia of the thigh, or fascia lata
Deep fascia of the thigh, or fascia lata (superficial layer)
Fascia lata (lamina superficialis)
Sartorius muscle
Cutaneous offsets
Rami cutanei
Patellar rete[5]
Rete patellæ
Superior internal articular artery (of the knee)
A. genu superior medialis
1/3

FIG. 1033.—THE TOPOGRAPHICAL ANATOMY OF SCARPA'S TRIANGLE (TRIGONUM FEMORALE *VEL* FOSSA SCARPÆ MAJOR) AND THE SUBCUTANEOUS ARTERIES OF THE ANTERIOR SURFACE OF THE RIGHT THIGH, THE REGION OF THE KNEE-JOINT, THE EXTERNAL GENERATIVE ORGANS, AND THE HYPOGASTRIC REGION (REGIO HYPOGASTRICA); SEEN FROM BEFORE.

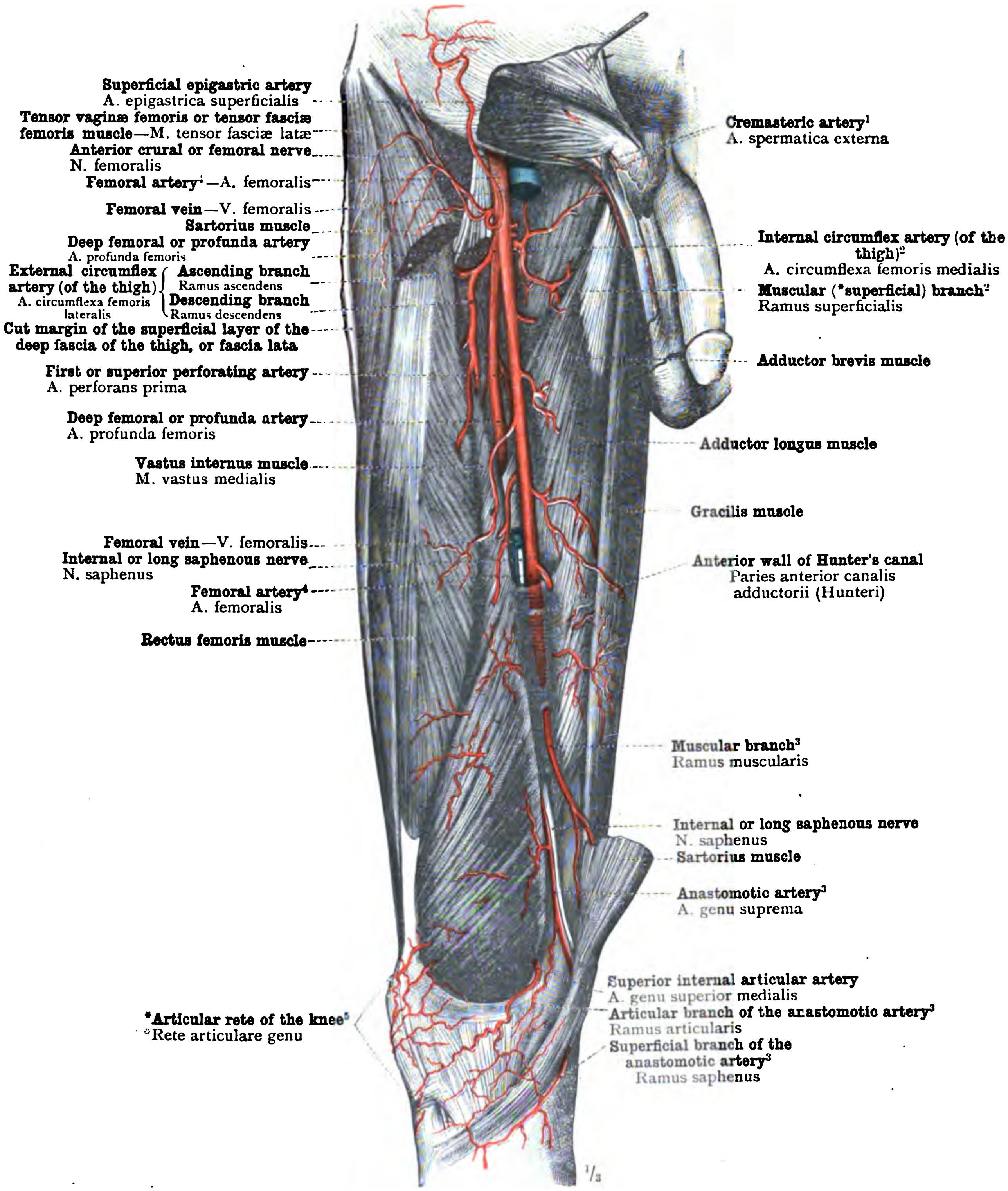
The superficial layer of the deep fascia of the thigh, or fascia lata, has been removed in the region of Scarpa's triangle, and also from the surfaces of the sartorius, adductor longus, and tensor vaginæ femoris muscles.

---

[1] See Appendix, note 129.

[2] The upper of these is called by Macalister the *superior* or *superficial pubic*, the lower, the *inferior pubic artery*.—Tr.

[3] See Appendix, note 223. [4] See Appendix, note 224. [5] See Appendix, note 225.

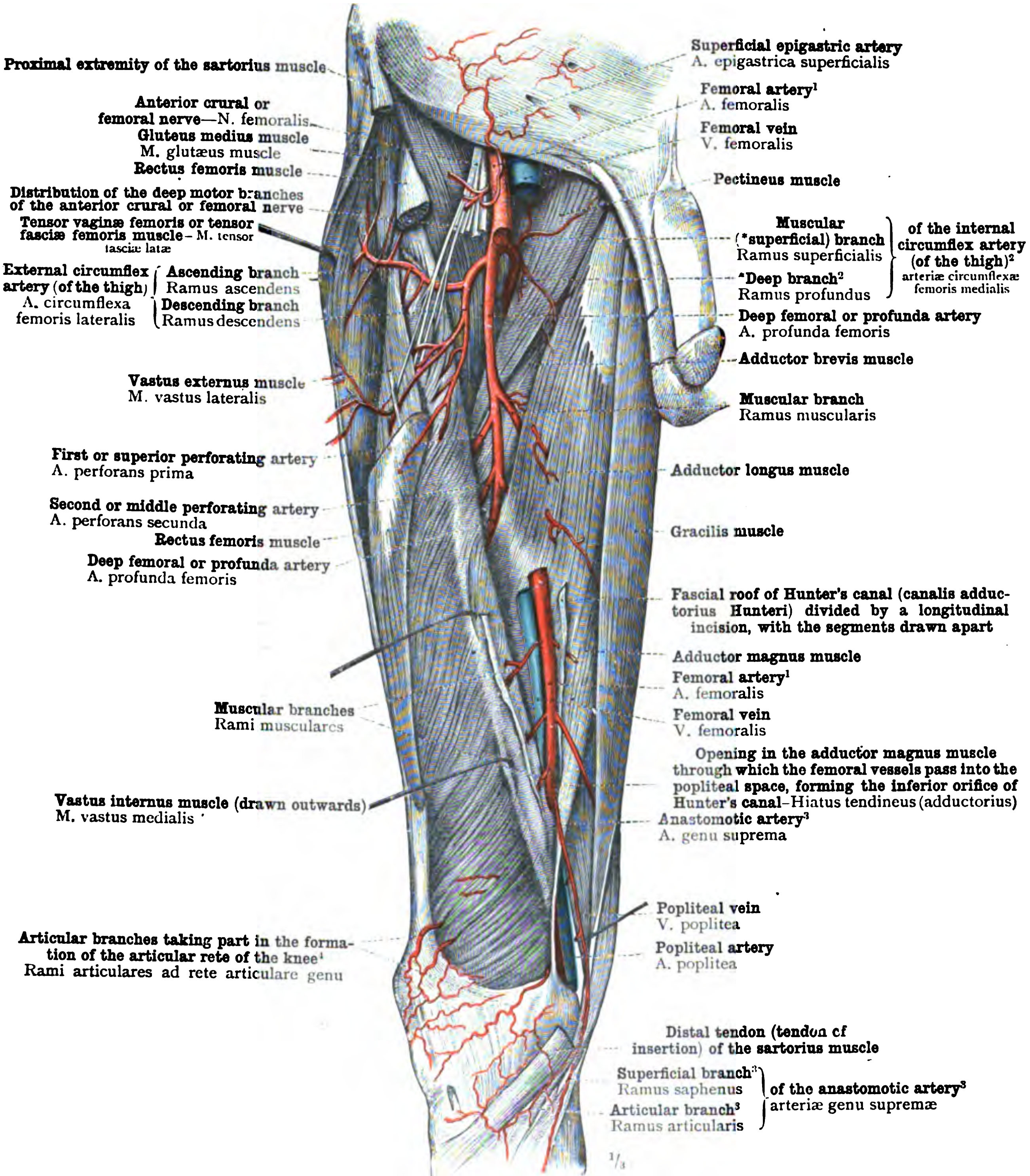

Superficial epigastric artery
A. epigastrica superficialis
Tensor vaginæ femoris or tensor fasciæ femoris muscle—M. tensor fasciæ latæ
Anterior crural or femoral nerve
N. femoralis
Femoral artery¹—A. femoralis
Femoral vein—V. femoralis
Sartorius muscle
Deep femoral or profunda artery
A. profunda femoris
External circumflex artery (of the thigh)
A. circumflexa femoris lateralis
Ascending branch
Ramus ascendens
Descending branch
Ramus descendens
Cut margin of the superficial layer of the deep fascia of the thigh, or fascia lata
First or superior perforating artery
A. perforans prima
Deep femoral or profunda artery
A. profunda femoris
Vastus internus muscle
M. vastus medialis
Femoral vein—V. femoralis
Internal or long saphenous nerve
N. saphenus
Femoral artery⁴
A. femoralis
Rectus femoris muscle
*Articular rete of the knee⁵
*Rete articulare genu
Cremasteric artery¹
A. spermatica externa
Internal circumflex artery (of the thigh)²
A. circumflexa femoris medialis
Muscular (*superficial) branch²
Ramus superficialis
Adductor brevis muscle
Adductor longus muscle
Gracilis muscle
Anterior wall of Hunter's canal
Paries anterior canalis adductorii (Hunteri)
Muscular branch³
Ramus muscularis
Internal or long saphenous nerve
N. saphenus
Sartorius muscle
Anastomotic artery³
A. genu suprema
Superior internal articular artery
A. genu superior medialis
Articular branch of the anastomotic artery³
Ramus articularis
Superficial branch of the anastomotic artery³
Ramus saphenus
1/3

[1] See Appendix, note 129.
[4] See Appendix, note 223.
[2] See Appendix, note 224.
[5] See Appendix, note 227.
[3] See Appendix, note 226.

FIG. 1034.—THE FEMORAL ARTERY, ARTERIA FEMORALIS (*see Appendix, note* 223), EXPOSED AS FAR AS ITS ENTRY INTO HUNTER'S CANAL (*see Appendix, note* 228), AND THE DEEP FEMORAL OR PROFUNDA ARTERY, ARTERIA PROFUNDA FEMORIS.

The middle portion of the sartorius muscle has been cut away.

Arteries of the Front of the Thigh.


Proximal extremity of the sartorius muscle
Anterior crural or femoral nerve—N. femoralis
Gluteus medius muscle
M. glutæus muscle
Rectus femoris muscle
Distribution of the deep motor branches of the anterior crural or femoral nerve
Tensor vaginæ femoris or tensor fasciæ femoris muscle—M. tensor fasciæ latæ
External circumflex artery (of the thigh)
A. circumflexa femoris lateralis
Ascending branch
Ramus ascendens
Descending branch
Ramus descendens
Vastus externus muscle
M. vastus lateralis
First or superior perforating artery
A. perforans prima
Second or middle perforating artery
A. perforans secunda
Rectus femoris muscle
Deep femoral or profunda artery
A. profunda femoris
Muscular branches
Rami musculares
Vastus internus muscle (drawn outwards)
M. vastus medialis
Articular branches taking part in the formation of the articular rete of the knee[4]
Rami articulares ad rete articulare genu
Superficial epigastric artery
A. epigastrica superficialis
Femoral artery[1]
A. femoralis
Femoral vein
V. femoralis
Pectineus muscle
Muscular (*superficial) branch
Ramus superficialis
*Deep branch[2]
Ramus profundus
of the internal circumflex artery (of the thigh)[2]
arteriæ circumflexæ femoris medialis
Deep femoral or profunda artery
A. profunda femoris
Adductor brevis muscle
Muscular branch
Ramus muscularis
Adductor longus muscle
Gracilis muscle
Fascial roof of Hunter's canal (canalis adductorius Hunteri) divided by a longitudinal incision, with the segments drawn apart
Adductor magnus muscle
Femoral artery[1]
A. femoralis
Femoral vein
V. femoralis
Opening in the adductor magnus muscle through which the femoral vessels pass into the popliteal space, forming the inferior orifice of Hunter's canal—Hiatus tendineus (adductorius)
Anastomotic artery[3]
A. genu suprema
Popliteal vein
V. poplitea
Popliteal artery
A. poplitea
Distal tendon (tendon of insertion) of the sartorius muscle
Superficial branch[3]
Ramus saphenus
Articular branch[3]
Ramus articularis
of the anastomotic artery[3]
arteriæ genu supremæ
1/3

[1] See Appendix, note 223.

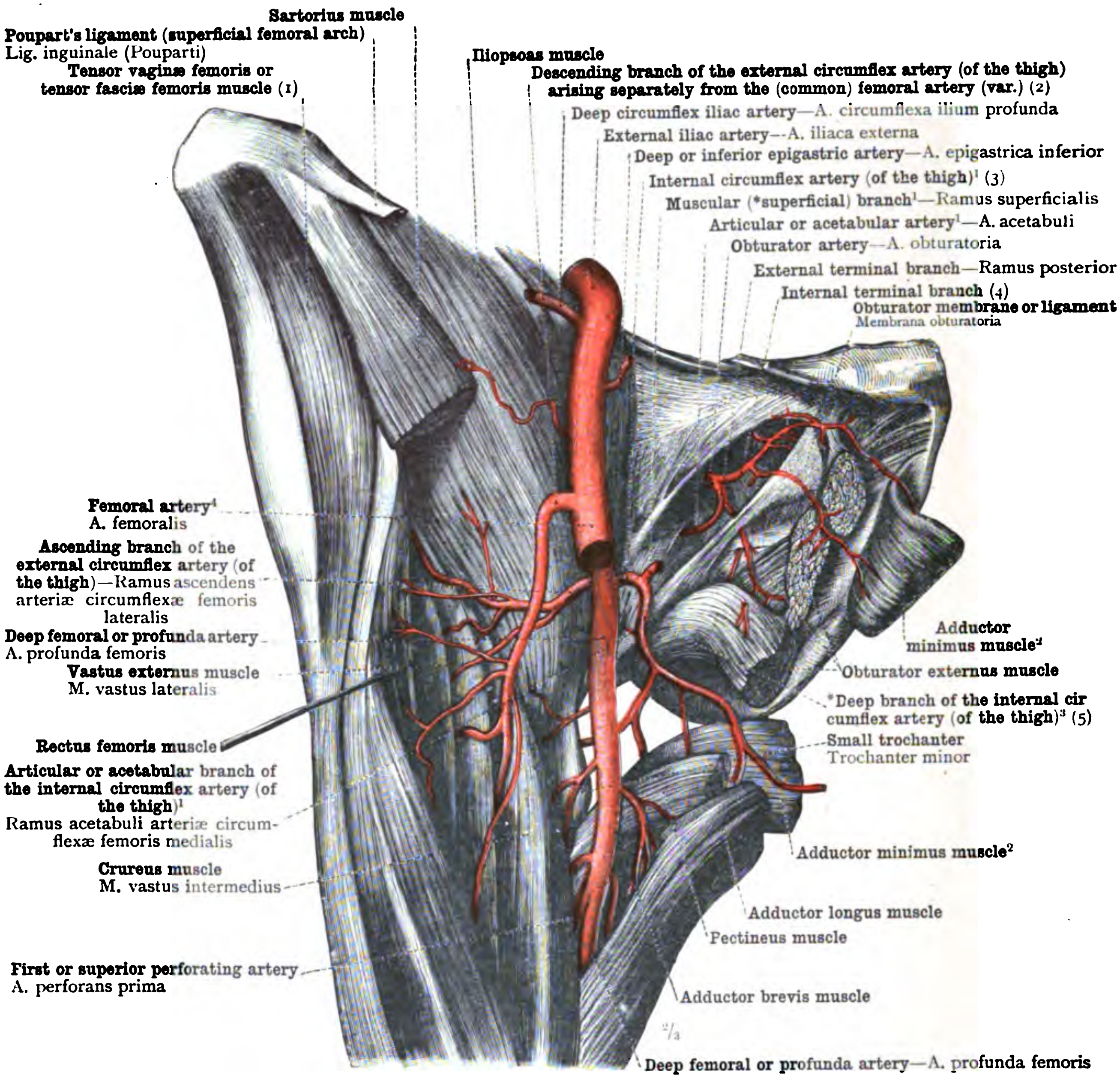
[2] *Ramus Profundus.*—The so-called **deep branch* of the *internal circumflex artery* is by English anatomists regarded as the continuation of that vessel itself. See Appendix, note 224.—TR.

[3] See Appendix, note 226.

[4] See Appendix, note 227.

FIG. 1035.—THE DEEP FEMORAL OR PROFUNDA ARTERY, ARTERIA PROFUNDA FEMORIS, EXPOSED BY THE PARTIAL REMOVAL OF THE (SUPERFICIAL) FEMORAL ARTERY (*see Appendix, note* 223); THE (SUPERFICIAL) FEMORAL ARTERY AND VEIN, ARTERIA ET VENA FEMORALIS, IN HUNTER'S CANAL (CANALIS ADDUCTORIUS HUNTERI), THE FASCIAL ROOF OF WHICH HAS BEEN DIVIDED; THE PASSAGE OF THE (SUPERFICIAL) FEMORAL VESSELS THROUGH THE OPENING IN THE ADDUCTOR MAGNUS MUSCLE (HIATUS TENDINEUS ADDUCTORIUS). SEEN FROM BEFORE.

Arteries of the Front of the Thigh.


Sartorius muscle
Poupart's ligament (superficial femoral arch)
Lig. inguinale (Pouparti)
Tensor vaginæ femoris or tensor fasciæ femoris muscle (1)
Iliopsoas muscle
Descending branch of the external circumflex artery (of the thigh) arising separately from the (common) femoral artery (var.) (2)
Deep circumflex iliac artery—A. circumflexa ilium profunda
External iliac artery—A. iliaca externa
Deep or inferior epigastric artery—A. epigastrica inferior
Internal circumflex artery (of the thigh)¹ (3)
Muscular (*superficial) branch¹—Ramus superficialis
Articular or acetabular artery¹—A. acetabuli
Obturator artery—A. obturatoria
External terminal branch—Ramus posterior
Internal terminal branch (4)
Obturator membrane or ligament
Membrana obturatoria
Femoral artery¹
A. femoralis
Ascending branch of the external circumflex artery (of the thigh)—Ramus ascendens arteriæ circumflexæ femoris lateralis
Deep femoral or profunda artery
A. profunda femoris
Vastus externus muscle
M. vastus lateralis
Rectus femoris muscle
Articular or acetabular branch of the internal circumflex artery (of the thigh)¹
Ramus acetabuli arteriæ circumflexæ femoris medialis
Crureus muscle
M. vastus intermedius
First or superior perforating artery
A. perforans prima
Adductor minimus muscle²
Obturator externus muscle
*Deep branch of the internal circumflex artery (of the thigh)³ (5)
Small trochanter
Trochanter minor
Adductor minimus muscle²
Adductor longus muscle
Pectineus muscle
Adductor brevis muscle
²/₃
Deep femoral or profunda artery—A. profunda femoris

(1) M. tensor fasciæ latæ (2) Ramus descendens arteriæ circumflexæ femoris lateralis ex arteria femorale nascens (var.)
(3) A. circumflexa femoris medialis (4) Ramus anterior (5) Ramus profundus arteriæ circumflexæ femoris medialis

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[1] See Appendix, note 224.

[2] *Adductor Minimus Muscle.*—This, by English anatomists, is usually regarded, not as a separate muscle, but as the anterior and superior portion of the adductor magnus muscle. See note 2 to p. 345 in Part III. of this work.—Tr.

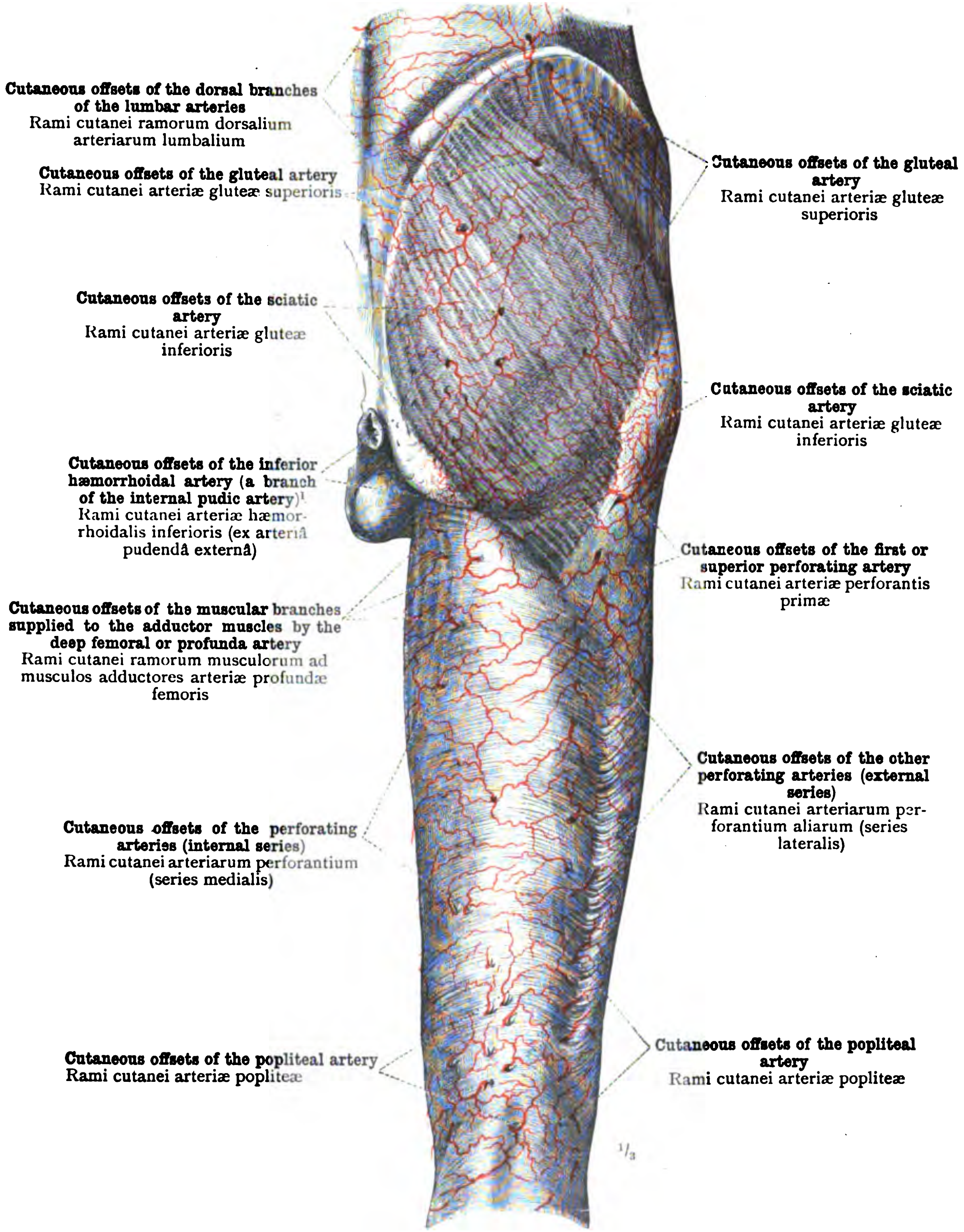
[3] See note 2 to p. 643 and Appendix, note 224.

[4] See Appendix, note 223.

FIG. 1036.—THE RIGHT OBTURATOR ARTERY, ITS DIVISION INTO INTERNAL AND EXTERNAL TERMINAL BRANCHES, AND THE ORIGIN FROM THE LATTER OF THE ARTICULAR OR ACETABULAR ARTERY. THE DEEP FEMORAL OR PROFUNDA ARTERY, THE *DEEP BRANCH OF THE INTERNAL CIRCUMFLEX ARTERY (*see Appendix, note* 224), AND ITS ARTICULAR OR ACETABULAR BRANCH, RAMUS ACETABULI. OF THE TWO PRINCIPAL BRANCHES OF THE EXTERNAL CIRCUMFLEX ARTERY, THE ASCENDING BRANCH ARISES IN THIS SPECIMEN FROM THE DEEP FEMORAL OR PROFUNDA ARTERY, BUT THE DESCENDING BRANCH ARISES FROM THE (COMMON) FEMORAL ARTERY (VAR.).

The sartorius muscle has been removed, except for the proximal extremity; the pectineus, adductor longus, and adductor brevis muscles have been divided transversely, the parts below the incision have been drawn inwards, and the proximal extremities have been cut away. The adductor magnus muscle has been entirely removed, the adductor minimus muscle (*see note 2 above*) has been divided transversely, and the segments have been drawn apart. The obturator externus muscle, which has been thus exposed, has been divided by an incision passing vertically downwards from its upper border, and the inner segment of the muscle has been turned downwards and inwards.

Arteries of the Front of the Thigh.


Cutaneous offsets of the dorsal branches of the lumbar arteries
Rami cutanei ramorum dorsalium arteriarum lumbalium
Cutaneous offsets of the gluteal artery
Rami cutanei arteriæ gluteæ superioris
Cutaneous offsets of the sciatic artery
Rami cutanei arteriæ gluteæ inferioris
Cutaneous offsets of the inferior hæmorrhoidal artery (a branch of the internal pudic artery)[1]
Rami cutanei arteriæ hæmorrhoidalis inferioris (ex arteriâ pudendâ externâ)
Cutaneous offsets of the muscular branches supplied to the adductor muscles by the deep femoral or profunda artery
Rami cutanei ramorum musculorum ad musculos adductores arteriæ profundæ femoris
Cutaneous offsets of the perforating arteries (internal series)
Rami cutanei arteriarum perforantium (series medialis)
Cutaneous offsets of the popliteal artery
Rami cutanei arteriæ popliteæ
Cutaneous offsets of the gluteal artery
Rami cutanei arteriæ gluteæ superioris
Cutaneous offsets of the sciatic artery
Rami cutanei arteriæ gluteæ inferioris
Cutaneous offsets of the first or superior perforating artery
Rami cutanei arteriæ perforantis primæ
Cutaneous offsets of the other perforating arteries (external series)
Rami cutanei arteriarum perforantium aliarum (series lateralis)
Cutaneous offsets of the popliteal artery
Rami cutanei arteriæ popliteæ
1/3

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[1] *Inferior Hæmorrhoidal Artery.*—Quain gives *external hæmorrhoidal* as an alternative name for this vessel, while Macalister calls it the *anal* artery.

FIG. 1037.—THE CUTANEOUS ARTERIES OF THE BUTTOCK, THE BACK OF THE THIGH, AND THE HAM. RIGHT LOWER EXTREMITY, SEEN FROM BEHIND.

Arteries of the Buttock, the Back of the Thigh, and the Ham.

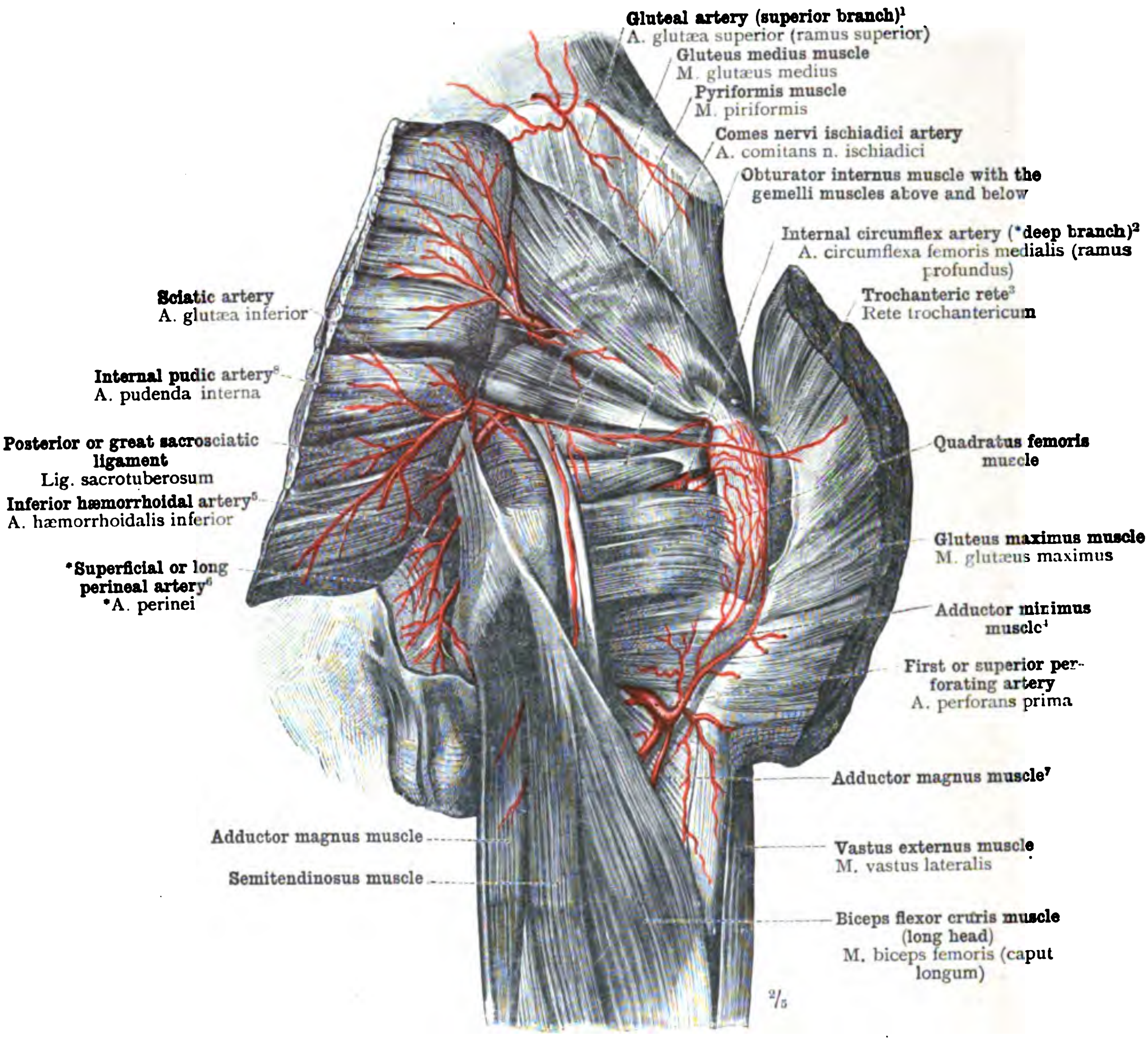
Gluteal artery (superior branch)[1]
A. glutæa superior (ramus superior)
Gluteus medius muscle
M. glutæus medius
Pyriformis muscle
M. piriformis
Comes nervi ischiadici artery
A. comitans n. ischiadici
Obturator internus muscle with the gemelli muscles above and below
Internal circumflex artery (*deep branch)[2]
A. circumflexa femoris medialis (ramus profundus)
Trochanteric rete[3]
Rete trochantericum
Sciatic artery
A. glutæa inferior
Internal pudic artery[8]
A. pudenda interna
Posterior or great sacrosciatic ligament
Lig. sacrotuberosum
Inferior hæmorrhoidal artery[5]
A. hæmorrhoidalis inferior
*Superficial or long perineal artery[6]
*A. perinei
Quadratus femoris muscle
Gluteus maximus muscle
M. glutæus maximus
Adductor minimus muscle[4]
First or superior perforating artery
A. perforans prima
Adductor magnus muscle[7]
Vastus externus muscle
M. vastus lateralis
Biceps flexor cruris muscle (long head)
M. biceps femoris (caput longum)
Adductor magnus muscle
Semitendinosus muscle
2/5

FIG. 1038.—THE DEEP ARTERIES OF THE RIGHT BUTTOCK; SEEN FROM BEHIND. THE UPPER BRANCH, RAMUS SUPERIOR, OF THE DEEP PART OF THE GLUTEAL ARTERY, ARTERIA GLUTEA SUPERIOR; THE SCIATIC ARTERY, ARTERIA GLUTEA INFERIOR, AND THE COMES NERVI ISCHIADICI ARTERY, ARTERIA COMITANS NERVI ISCHIADICI; THE INTERNAL PUDIC ARTERY, ARTERIA PUDENDA INTERNA, FROM ITS EMERGENCE FROM THE PELVIS THROUGH THE GREAT SACROSCIATIC FORAMEN TO ITS ENTRY INTO THE ISCHIORECTAL FOSSA THROUGH THE SMALL SACROSCIATIC FORAMEN; THE INFERIOR OR EXTERNAL HÆMORRHOIDAL ARTERY (ANAL ARTERY), ARTERIA HÆMORRHOIDALIS INFERIOR, AND THE SUPERFICIAL OR LONG PERINEAL ARTERY, ARTERIA PERINEI. THE EMERGENCE OF THE FIRST OR SUPERIOR PERFORATING ARTERY, ARTERIA PERFORANS PRIMA, BETWEEN THE ADDUCTOR MINIMUS AND ADDUCTOR MAGNUS MUSCLES (*see note* 2 *to p.* 644), AND ITS DIVISION INTO ASCENDING AND DESCENDING BRANCHES; THE CRUCIAL ANASTOMOSIS AND THE TROCHANTERIC RETE, RETE TROCHANTERICUM.

The gluteus maximus muscle has been cut across a little above and internal to its middle, and the segments have been turned inwards and outwards, respectively.

Arteries of the Buttock.

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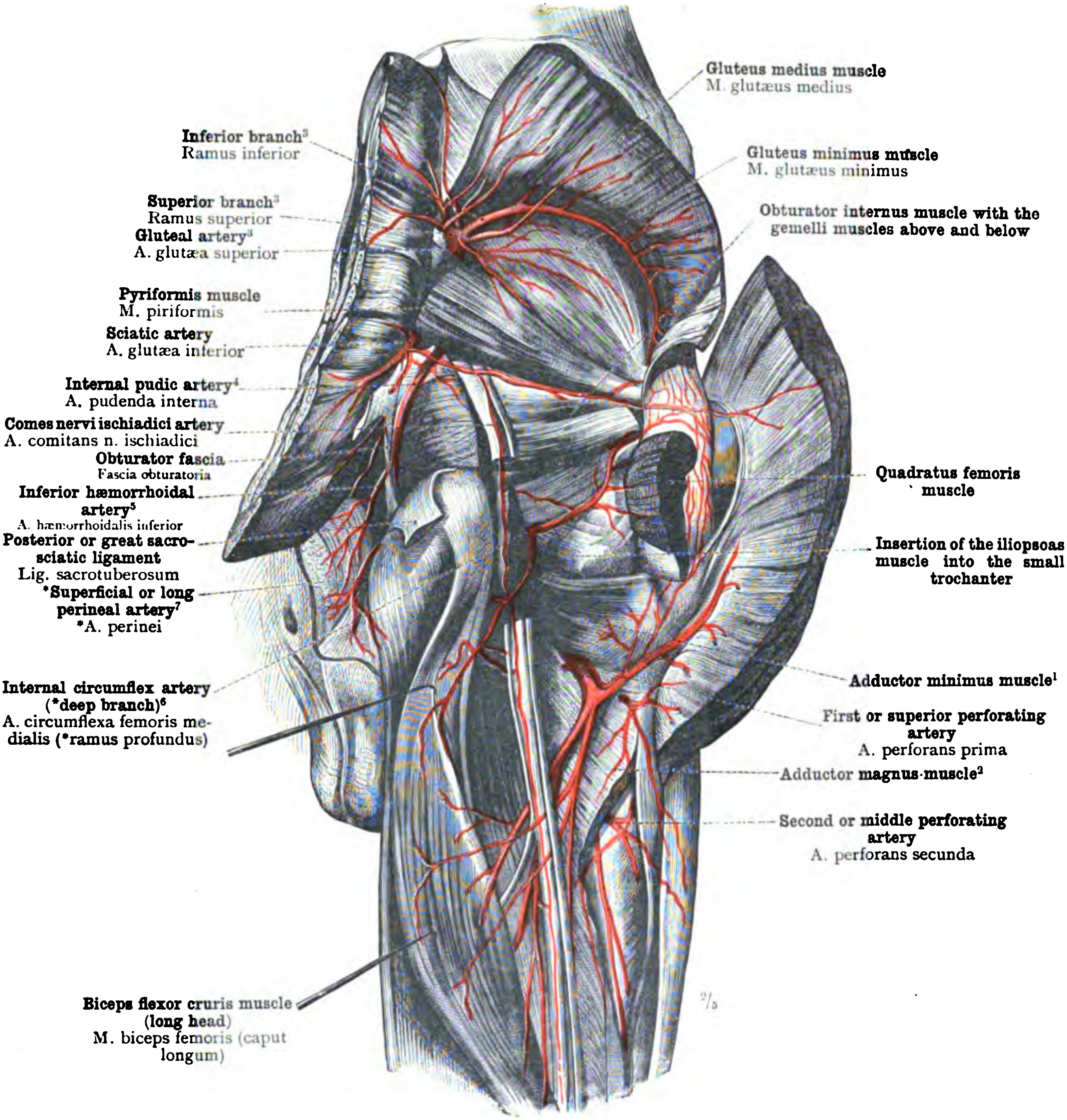
[1] See Appendix, note 229.
[2] See note 2 to p. 643 and Appendix, note 224.
[3] See Appendix, note 230.
[4] See note 2 to p. 644.
[5] Quain gives *external hæmorrhoidal* as an alternative name for this vessel, while Macalister calls it the *anal artery*.
[6] See Appendix, note 147.
[7] See Appendix, note 231.
[8] See Appendix, note 139.

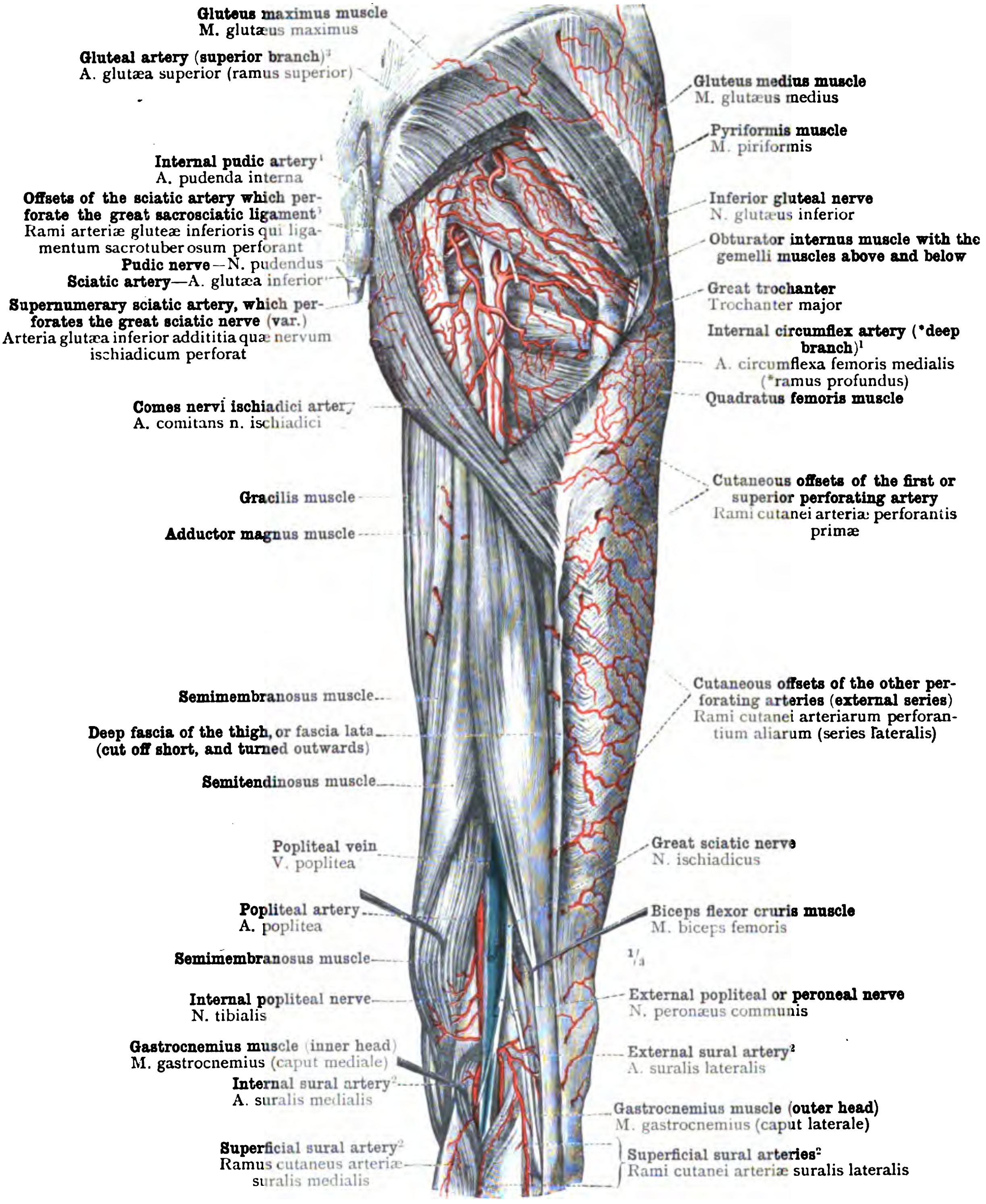

Gluteus medius muscle
M. glutæus medius
Inferior branch[3]
Ramus inferior
Gluteus minimus muscle
M. glutæus minimus
Superior branch[3]
Ramus superior
Gluteal artery[3]
A. glutæa superior
Obturator internus muscle with the gemelli muscles above and below
Pyriformis muscle
M. piriformis
Sciatic artery
A. glutæa inferior
Internal pudic artery[4]
A. pudenda interna
Comes nervi ischiadici artery
A. comitans n. ischiadici
Obturator fascia
Fascia obturatoria
Quadratus femoris muscle
Inferior hæmorrhoidal artery[5]
A. hæmorrhoidalis inferior
Posterior or great sacro-sciatic ligament
Lig. sacrotuberosum
Insertion of the iliopsoas muscle into the small trochanter
*Superficial or long perineal artery[7]
*A. perinei
Adductor minimus muscle[1]
Internal circumflex artery (*deep branch)[6]
A. circumflexa femoris medialis (*ramus profundus)
First or superior perforating artery
A. perforans prima
Adductor magnus muscle[2]
Second or middle perforating artery
A. perforans secunda
Biceps flexor cruris muscle (long head)
M. biceps femoris (caput longum)
²/₃

[1] See note [2] to p. 644.
[2] See Appendix, note 231.
[3] See Appendix, note 229.
[4] See Appendix, note 139.
[5] Quain gives *external hæmorrhoidal* as an alternative name for this vessel, while Macalister calls it the *anal artery*.
[6] See note [2] to p. 643 and Appendix, note 224.
[7] See Appendix, note 147.

FIG. 1039.—THE DEEP ARTERIES OF THE RIGHT BUTTOCK AND OF THE ADJOINING PORTION OF THE RIGHT THIGH

In the preparation shown in Fig. 1037, the gluteus medius muscle was turned upwards, the posterior or great sacrosciatic ligament (ligamentum sacrotuberosum) was divided, and, after detaching it from the obturator fascia, its segments were drawn apart, in order to show the internal pudic artery (arteria pudenda interna) in the small sacrosciatic foramen. By the removal of parts of the great sciatic nerve and the quadratus femoris muscle, the internal circumflex artery and its branches (*ramus profundus arteriæ circumflexæ femoris medialis—*see Appendix, note* 224) were displayed beneath the obturator externus muscle. By the removal of part of the femoral attachment (insertion) of the adductor magnus muscle (*see Appendix, note* 231), the second or middle perforating artery was also displayed.

Arteries of the Buttock.


Gluteus maximus muscle
M. glutæus maximus
Gluteal artery (superior branch)[3]
A. glutæa superior (ramus superior)
Internal pudic artery[1]
A. pudenda interna
Offsets of the sciatic artery which perforate the great sacrosciatic ligament[5]
Rami arteriæ gluteæ inferioris qui ligamentum sacrotuberosum perforant
Pudic nerve—N. pudendus
Sciatic artery—A. glutæa inferior
Supernumerary sciatic artery, which perforates the great sciatic nerve (var.)
Arteria glutæa inferior addititia quæ nervum ischiadicum perforat
Comes nervi ischiadici artery
A. comitans n. ischiadici
Gracilis muscle
Adductor magnus muscle
Semimembranosus muscle
Deep fascia of the thigh, or fascia lata (cut off short, and turned outwards)
Semitendinosus muscle
Popliteal vein
V. poplitea
Popliteal artery
A. poplitea
Semimembranosus muscle
Internal popliteal nerve
N. tibialis
Gastrocnemius muscle (inner head)
M. gastrocnemius (caput mediale)
Internal sural artery[2]
A. suralis medialis
Superficial sural artery[2]
Ramus cutaneus arteriæ suralis medialis
Gluteus medius muscle
M. glutæus medius
Pyriformis muscle
M. piriformis
Inferior gluteal nerve
N. glutæus inferior
Obturator internus muscle with the gemelli muscles above and below
Great trochanter
Trochanter major
Internal circumflex artery (*deep branch)[1]
A. circumflexa femoris medialis (*ramus profundus)
Quadratus femoris muscle
Cutaneous offsets of the first or superior perforating artery
Rami cutanei arteriæ perforantis primæ
Cutaneous offsets of the other perforating arteries (external series)
Rami cutanei arteriarum perforantium aliarum (series lateralis)
Great sciatic nerve
N. ischiadicus
Biceps flexor cruris muscle
M. biceps femoris
1/3
External popliteal or peroneal nerve
N. peronæus communis
External sural artery[2]
A. suralis lateralis
Gastrocnemius muscle (outer head)
M. gastrocnemius (caput laterale)
Superficial sural arteries[2]
Rami cutanei arteriæ suralis lateralis

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[1] See note [2] to p. 643 and Appendix, note 224. [2] See Appendix, note 232. [3] See Appendix, note 229. [4] See Appendix, note 139.

[5] One of these branches, which has an inward course after perforating the great sacrosciatic ligament, is distinguished by English anatomists as the *coccygeal branch* of the *sciatic artery*.—TR.

FIG. 1040.—TOPOGRAPHICAL ANATOMY OF THE BUTTOCK AND THE HAM; THE CUTANEOUS ARTERIES OF THE POSTERO-EXTERNAL PART OF THE RIGHT THIGH; SEEN FROM BEHIND.

Arteries of the Buttock, the Back of the Thigh, and the Ham.

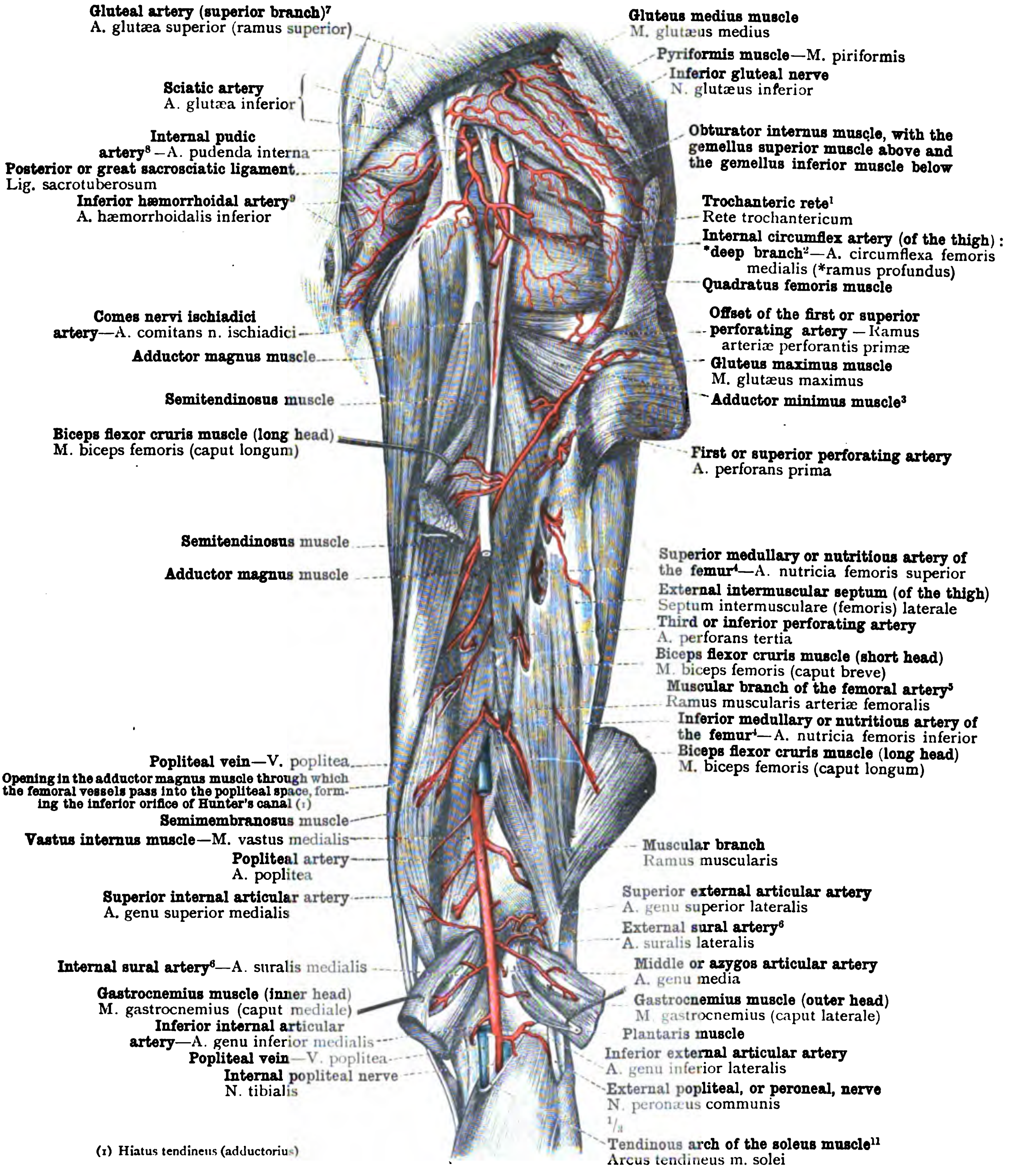

Gluteal artery (superior branch)[7]
A. glutæa superior (ramus superior)
Sciatic artery
A. glutæa inferior
Internal pudic artery[8]—A. pudenda interna
Posterior or great sacrosciatic ligament.
Lig. sacrotuberosum
Inferior hæmorrhoidal artery[9]
A. hæmorrhoidalis inferior
Comes nervi ischiadici artery—A. comitans n. ischiadici
Adductor magnus muscle
Semitendinosus muscle
Biceps flexor cruris muscle (long head)
M. biceps femoris (caput longum)
Semitendinosus muscle
Adductor magnus muscle
Popliteal vein—V. poplitea
Opening in the adductor magnus muscle through which the femoral vessels pass into the popliteal space, forming the inferior orifice of Hunter's canal (1)
Semimembranosus muscle
Vastus internus muscle—M. vastus medialis
Popliteal artery
A. poplitea
Superior internal articular artery
A. genu superior medialis
Internal sural artery[6]—A. suralis medialis
Gastrocnemius muscle (inner head)
M. gastrocnemius (caput mediale)
Inferior internal articular artery—A. genu inferior medialis
Popliteal vein—V. poplitea
Internal popliteal nerve
N. tibialis
(1) Hiatus tendineus (adductorius)
Gluteus medius muscle
M. glutæus medius
Pyriformis muscle—M. piriformis
Inferior gluteal nerve
N. glutæus inferior
Obturator internus muscle, with the gemellus superior muscle above and the gemellus inferior muscle below
Trochanteric rete[1]
Rete trochantericum
Internal circumflex artery (of the thigh): *deep branch[2]—A. circumflexa femoris medialis (*ramus profundus)
Quadratus femoris muscle
Offset of the first or superior perforating artery—Ramus arteriæ perforantis primæ
Gluteus maximus muscle
M. glutæus maximus
Adductor minimus muscle[3]
First or superior perforating artery
A. perforans prima
Superior medullary or nutritious artery of the femur[4]—A. nutricia femoris superior
External intermuscular septum (of the thigh)
Septum intermusculare (femoris) laterale
Third or inferior perforating artery
A. perforans tertia
Biceps flexor cruris muscle (short head)
M. biceps femoris (caput breve)
Muscular branch of the femoral artery[5]
Ramus muscularis arteriæ femoralis
Inferior medullary or nutritious artery of the femur[4]—A. nutricia femoris inferior
Biceps flexor cruris muscle (long head)
M. biceps femoris (caput longum)
Muscular branch
Ramus muscularis
Superior external articular artery
A. genu superior lateralis
External sural artery[6]
A. suralis lateralis
Middle or azygos articular artery
A. genu media
Gastrocnemius muscle (outer head)
M. gastrocnemius (caput laterale)
Plantaris muscle
Inferior external articular artery
A. genu inferior lateralis
External popliteal, or peroneal, nerve
N. peronæus communis
1/3
Tendinous arch of the soleus muscle[11]
Arcus tendineus m. solei

FIG. 1041.—THE DEEP ARTERIES OF THE BUTTOCK; THE PERFORATING ARTERIES, ARTERIÆ PERFORANTES; THE POPLITEAL ARTERY, ARTERIA POPLITEA, FROM THE OPENING IN THE ADDUCTOR MAGNUS MUSCLE TO THE ENTRY OF THE ARTERY INTO THE *POPLITEAL CANAL, *CANALIS POPLITEUS[10]; THE MUSCULAR AND ARTICULAR BRANCHES OF THE POPLITEAL ARTERY; SEEN FROM BEHIND.

[1] See Appendix, note 230.
[2] See note [2] to p. 643 and Appendix, note 224.
[3] See note [2] to p. 644.
[4] See Appendix, note 233.
[5] See Appendix, note 223.
[6] See Appendix, note 232.
[7] See Appendix, note 229.
[8] See Appendix, note 139.
[9] Quain gives *external hæmorrhoidal* as an alternative name for this vessel, while Macalister calls it the *anal artery*.
[10] See Appendix, note 234.
[11] See note [7] to p. 363 in Part III.

Arteries of the Buttock, the Back of the Thigh, and the Ham.

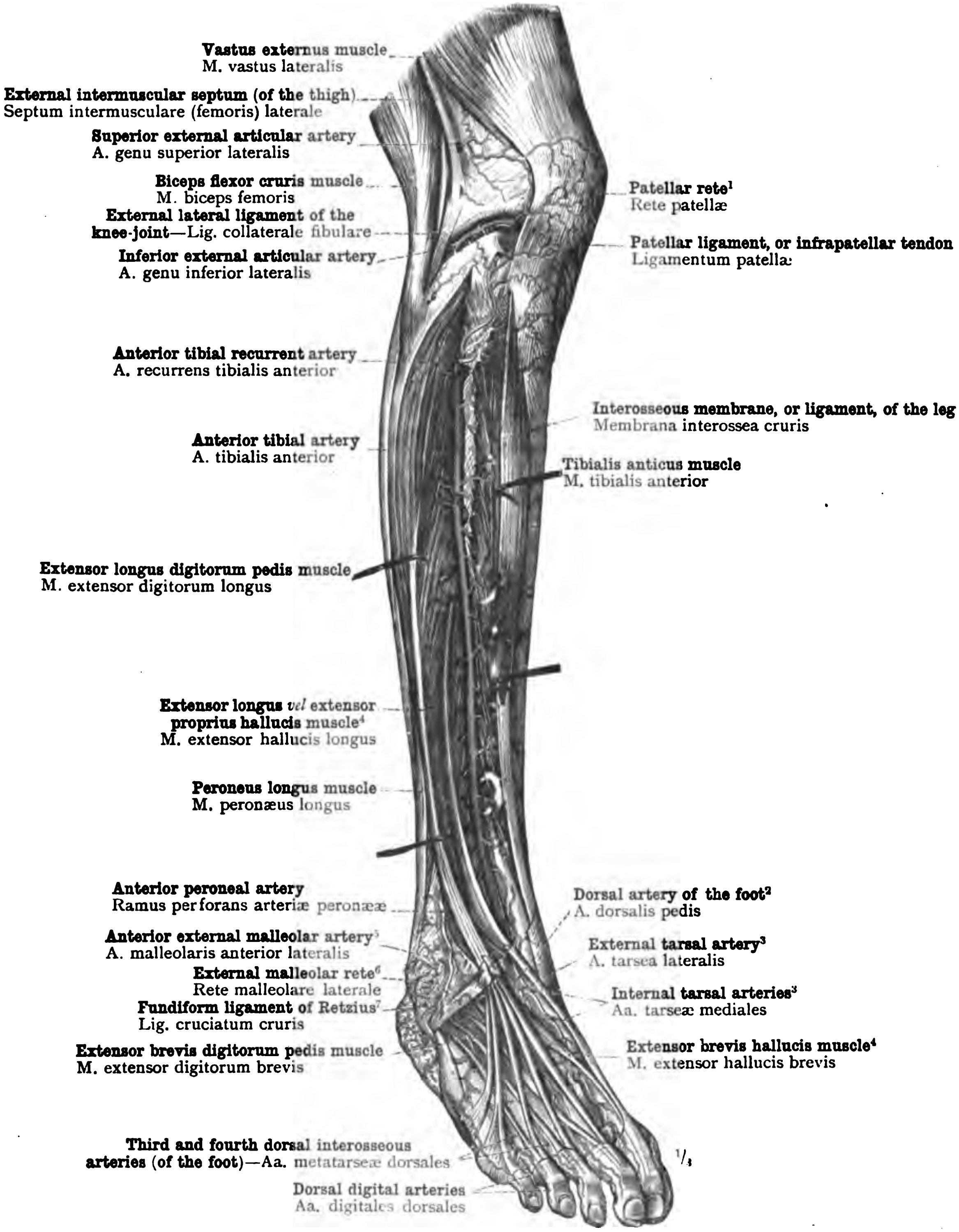
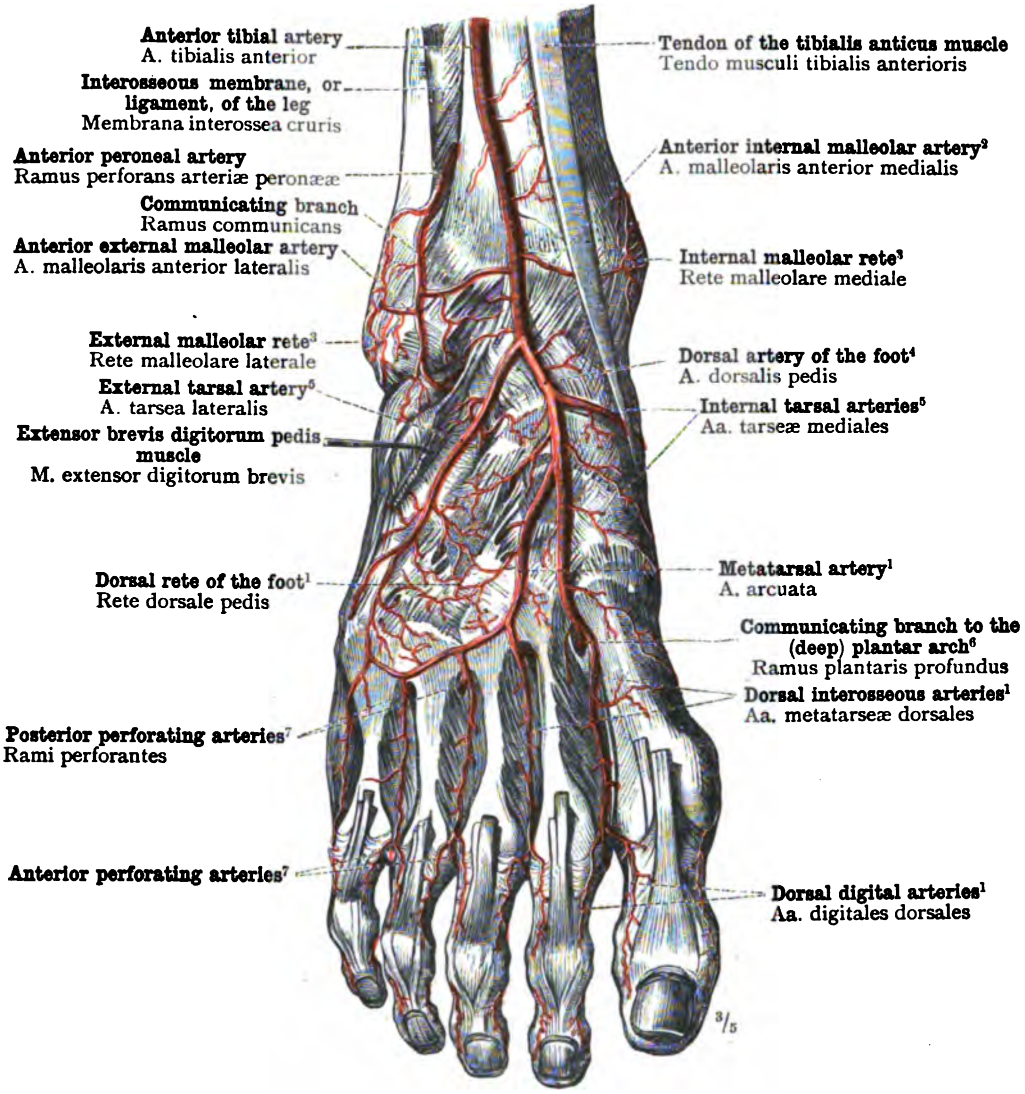

Vastus externus muscle
M. vastus lateralis
External intermuscular septum (of the thigh)
Septum intermusculare (femoris) laterale
Superior external articular artery
A. genu superior lateralis
Biceps flexor cruris muscle
M. biceps femoris
External lateral ligament of the
knee-joint—Lig. collaterale fibulare
Inferior external articular artery
A. genu inferior lateralis
Anterior tibial recurrent artery
A. recurrens tibialis anterior
Anterior tibial artery
A. tibialis anterior
Extensor longus digitorum pedis muscle
M. extensor digitorum longus
Extensor longus *vel* extensor
proprius hallucis muscle[4]
M. extensor hallucis longus
Peroneus longus muscle
M. peronæus longus
Anterior peroneal artery
Ramus perforans arteriæ peronææ
Anterior external malleolar artery[5]
A. malleolaris anterior lateralis
External malleolar rete[6]
Rete malleolare laterale
Fundiform ligament of Retzius[7]
Lig. cruciatum cruris
Extensor brevis digitorum pedis muscle
M. extensor digitorum brevis
Third and fourth dorsal interosseous
arteries (of the foot)—Aa. metatarseæ dorsales
Dorsal digital arteries
Aa. digitales dorsales
Patellar rete[1]
Rete patellæ
Patellar ligament, or infrapatellar tendon
Ligamentum patellæ
Interosseous **membrane, or ligament, of the leg**
Membrana interossea cruris
Tibialis anticus **muscle**
M. tibialis anterior
Dorsal artery **of the foot**[2]
A. dorsalis pedis
External **tarsal artery**[3]
A. tarsea lateralis
Internal **tarsal arteries**[3]
Aa. tarseæ mediales
Extensor **brevis hallucis muscle**[4]
M. extensor hallucis brevis
1/1

FIG. 1042.—THE ANTERIOR TIBIAL ARTERY AND ITS CONTINUATION INTO THE DORSAL ARTERY OF THE FOOT, OR DORSALIS PEDIS ARTERY.

The tibialis anticus and the extensor longus digitorum pedis muscles have been drawn apart, and the uppermost part of the former has been cut away. The anterior annular ligament of the ankle has been divided by a longitudinal incision, and its outer limb (fundiform ligament of Retzius[7]) has been raised from the subjacent tendons of the extensor longus digitorum pedis and peroneus tertius muscles.

[1] See Appendix, note 227.
[2] Often known in England by its Latin name of *dorsalis pedis artery*.
[3] See Appendix, note 235.
[4] See note 2 to p. 364 in Part III.
[5] See Appendix, note 236.
[6] See Appendix, note 237.
[7] See Appendix, note 238.

Arteries of the Front of the Leg and the Dorsum of the Foot.

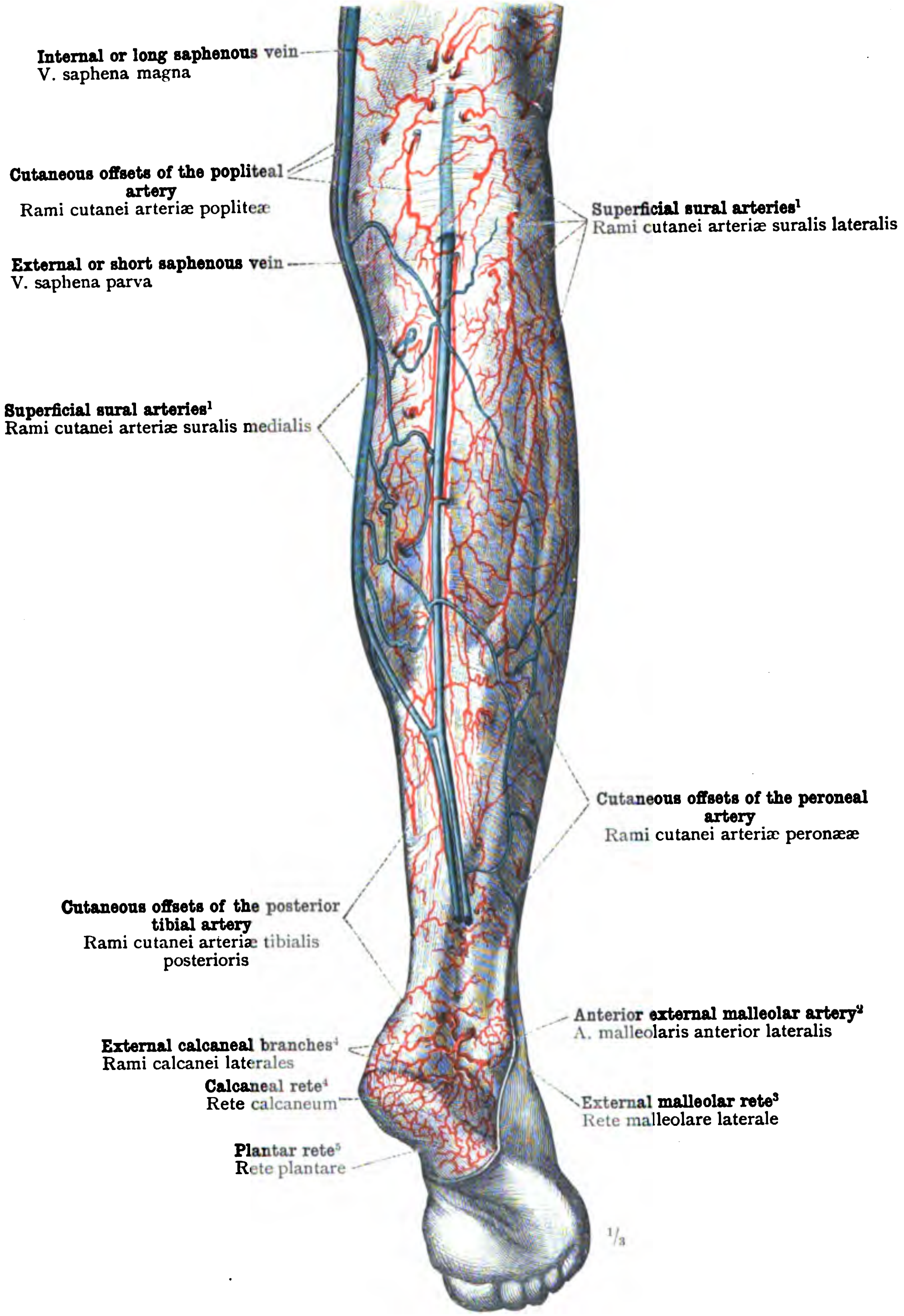

Anterior tibial artery
A. tibialis anterior
Interosseous membrane, or ligament, of the leg
Membrana interossea cruris
Anterior peroneal artery
Ramus perforans arteriæ peronææ
Communicating branch
Ramus communicans
Anterior external malleolar artery
A. malleolaris anterior lateralis
External malleolar rete[3]
Rete malleolare laterale
External tarsal artery[5]
A. tarsea lateralis
Extensor brevis digitorum pedis muscle
M. extensor digitorum brevis
Dorsal rete of the foot[1]
Rete dorsale pedis
Posterior perforating arteries[7]
Rami perforantes
Anterior perforating arteries[7]
Tendon of the tibialis anticus muscle
Tendo musculi tibialis anterioris
Anterior internal malleolar artery[2]
A. malleolaris anterior medialis
Internal malleolar rete[3]
Rete malleolare mediale
Dorsal artery of the foot[4]
A. dorsalis pedis
Internal tarsal arteries[5]
Aa. tarseæ mediales
Metatarsal artery[1]
A. arcuata
Communicating branch to the (deep) plantar arch[6]
Ramus plantaris profundus
Dorsal interosseous arteries[1]
Aa. metatarseæ dorsales
Dorsal digital arteries[1]
Aa. digitales dorsales
3/5

[1] See Appendix, note 239.
[2] See Appendix, note 236.
[3] See Appendix, note 237.
[4] Often known in England by its Latin name of *dorsalis pedis artery*.
[5] See Appendix, note 235.
[6] See Appendix, note 240.
[7] See Appendix, note 241.

Fig. 1043.—The Distal Extremity of the Anterior Tibial Artery, its Communication with the Anterior Peroneal Artery (Ramus Perforans Arteriæ Peronææ) and its Continuation into the Dorsal Artery of the Foot (Arteria Dorsalis Pedis); the Anterior External and Anterior Internal Malleolar Arteries (Arteriæ Malleolares Anteriores, Medialis et Lateralis); the External and Internal Malleolar Retia; the External Tarsal Artery (Arteria Tarsea Lateralis) and the Internal Tarsal Arteries (Arteriæ Tarseæ Mediales); the Metatarsal Artery (Arteria Arcuata); the Dorsal Arterial Rete of the Foot; the Communicating Branch of the Dorsal Artery of the Foot to the Deep Plantar Arch or First Posterior Perforating Artery (Ramus Plantaris Profundus Arteriæ Dorsalis Pedis—*see Appendix, note* 240); the Dorsal Interosseous Arteries (Arteriæ Metatarseæ Dorsales), and their Connexions with the Posterior Perforating Offsets (Rami Perforantes) of the Deep Plantar Arch; the Dorsal Digital Arteries (Arteriæ Digitales Dorsales), and their Anastomoses with the Plantar Digital Arteries (these Anastomoses being the Anterior Perforating Arteries of English Anatomists—*see Appendix, note* 241). The Right Foot with the Distal Extremity of the Leg; seen from the Dorsal Side.

The extensor muscles of the toes were removed as far down as the heads of the metatarsal bones and the peroneus tertius muscle was cut completely away, in order to lay bare the arteries on the dorsum of the foot.

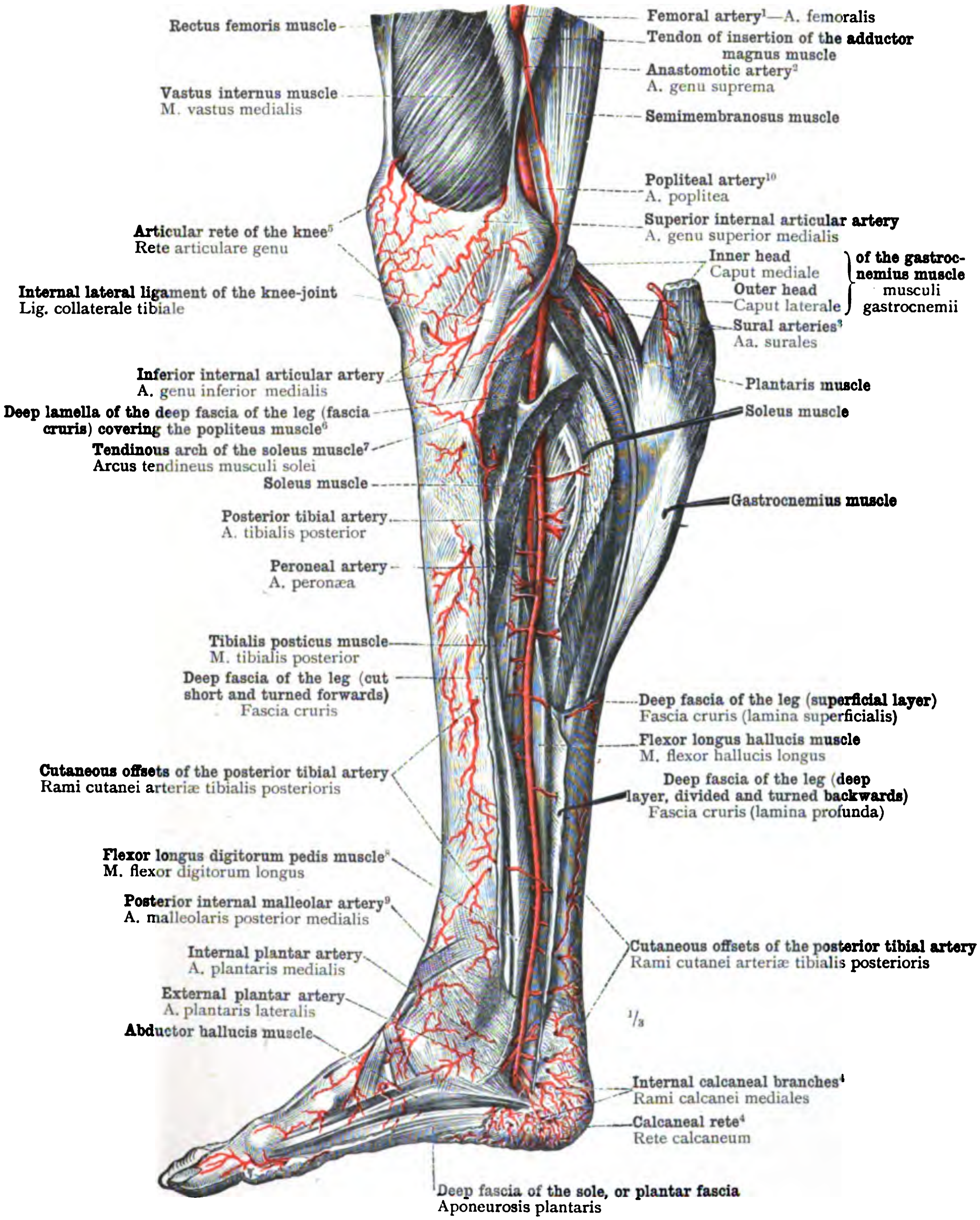
Arteries of the Dorsum of the Foot.


Internal or long saphenous vein
V. saphena magna
Cutaneous offsets of the popliteal artery
Rami cutanei arteriæ popliteæ
External or short saphenous vein
V. saphena parva
Superficial sural arteries[1]
Rami cutanei arteriæ suralis medialis
Superficial sural arteries[1]
Rami cutanei arteriæ suralis lateralis
Cutaneous offsets of the peroneal artery
Rami cutanei arteriæ peronææ
Cutaneous offsets of the posterior tibial artery
Rami cutanei arteriæ tibialis posterioris
Anterior external malleolar artery[2]
A. malleolaris anterior lateralis
External calcaneal branches[4]
Rami calcanei laterales
Calcaneal rete[4]
Rete calcaneum
External malleolar rete[3]
Rete malleolare laterale
Plantar rete[5]
Rete plantare
1/3

[1] See Appendix, note 232.
[2] See Appendix, note 236.
[3] See Appendix, note 237.
[4] See Appendix, note 242.
[5] See Appendix, note 243.

FIG. 1044.—THE SUBCUTANEOUS ARTERIES OF THE CALF AND OF THE POPLITEAL REGION IN ADDITION TO PORTIONS OF THE INTERNAL OR LONG AND THE EXTERNAL OR SHORT SAPHENOUS VEINS (VENA SAPHENA MAGNA ET VENA SAPHENA PARVA); THE CALCANEAL AND MALLEOLAR RETIA; THE POSTERIOR PORTION OF THE PLANTAR RETE. RIGHT LEG AND FOOT; SEEN FROM BEHIND AND THE OUTER SIDE.

Arteries of the Back of the Leg.


Rectus femoris muscle
Femoral artery[1]—A. femoralis
Tendon of insertion of the adductor magnus muscle
Anastomotic artery[2]
A. genu suprema
Vastus internus muscle
M. vastus medialis
Semimembranosus muscle
Popliteal artery[10]
A. poplitea
Articular rete of the knee[5]
Rete articulare genu
Superior internal articular artery
A. genu superior medialis
Inner head
Caput mediale
Outer head
Caput laterale
of the gastrocnemius muscle
musculi gastrocnemii
Internal lateral ligament of the knee-joint
Lig. collaterale tibiale
Sural arteries[3]
Aa. surales
Inferior internal articular artery
A. genu inferior medialis
Plantaris muscle
Deep lamella of the deep fascia of the leg (fascia cruris) covering the popliteus muscle[6]
Soleus muscle
Tendinous arch of the soleus muscle[7]
Arcus tendineus musculi solei
Soleus muscle
Gastrocnemius muscle
Posterior tibial artery
A. tibialis posterior
Peroneal artery
A. peronæa
Tibialis posticus muscle
M. tibialis posterior
Deep fascia of the leg (cut short and turned forwards)
Fascia cruris
Deep fascia of the leg (superficial layer)
Fascia cruris (lamina superficialis)
Flexor longus hallucis muscle
M. flexor hallucis longus
Cutaneous offsets of the posterior tibial artery
Rami cutanei arteriæ tibialis posterioris
Deep fascia of the leg (deep layer, divided and turned backwards)
Fascia cruris (lamina profunda)
Flexor longus digitorum pedis muscle[8]
M. flexor digitorum longus
Posterior internal malleolar artery[9]
A. malleolaris posterior medialis
Internal plantar artery
A. plantaris medialis
Cutaneous offsets of the posterior tibial artery
Rami cutanei arteriæ tibialis posterioris
External plantar artery
A. plantaris lateralis
1/3
Abductor hallucis muscle
Internal calcaneal branches[4]
Rami calcanei mediales
Calcaneal rete[4]
Rete calcaneum
Deep fascia of the sole, or plantar fascia
Aponeurosis plantaris

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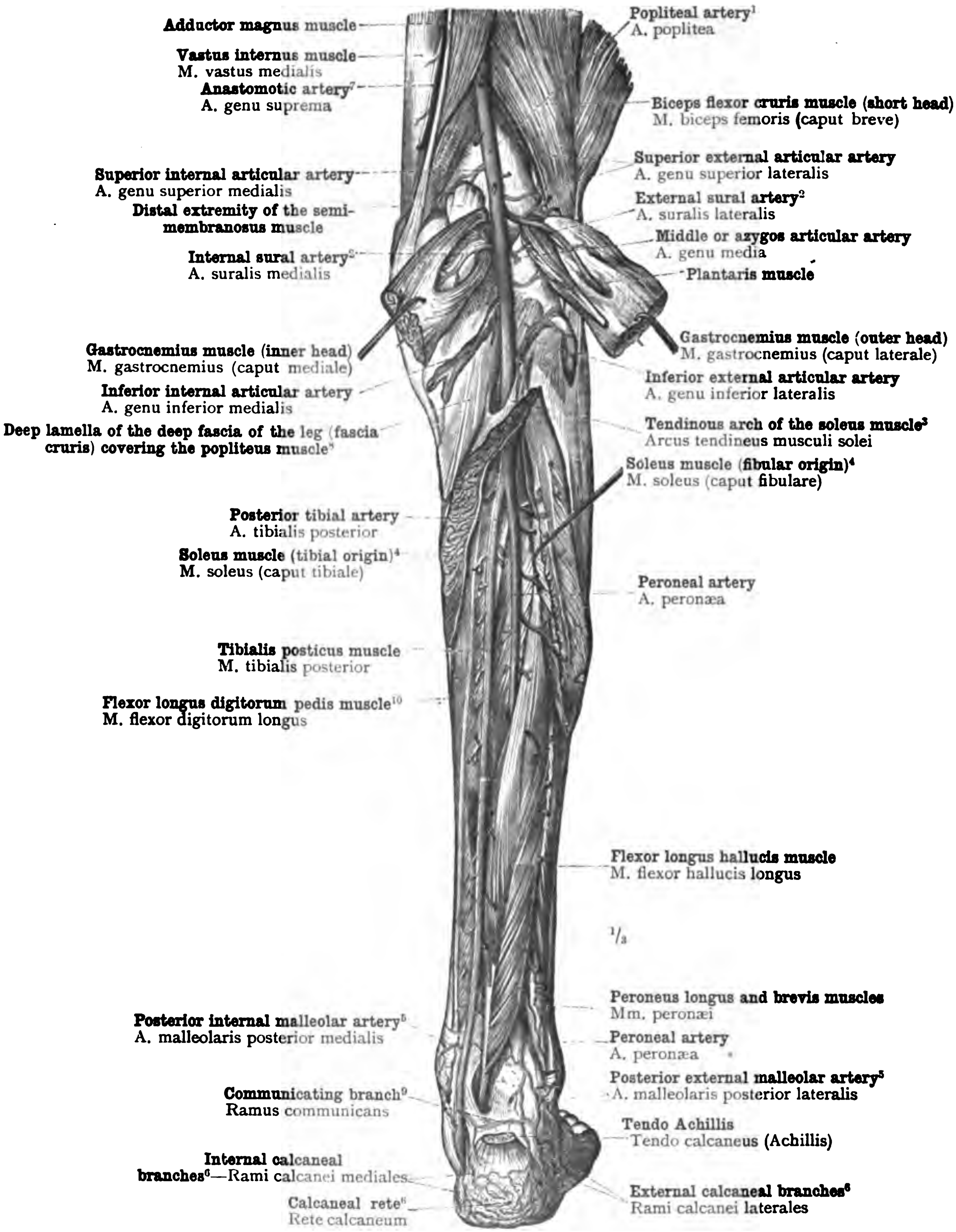
[1] See Appendix, note 223.
[2] See Appendix, note 226.
[3] See Appendix, note 232.
[4] See Appendix, note 242.
[5] See note 5 to p. 642.
[6] See Appendix, note 244.
[7] See note 7 to p. 363 in Part III.
[8] Or *flexor perforans* muscle.
[9] See Appendix, note 236.
[10] See Appendix, note 245.

FIG. 1045.—THE POPLITEAL ARTERY, ITS PASSAGE THROUGH THE *POPLITEAL CANAL (*see Appendix, note* 245), AND THE POSTERIOR TIBIAL ARTERY.

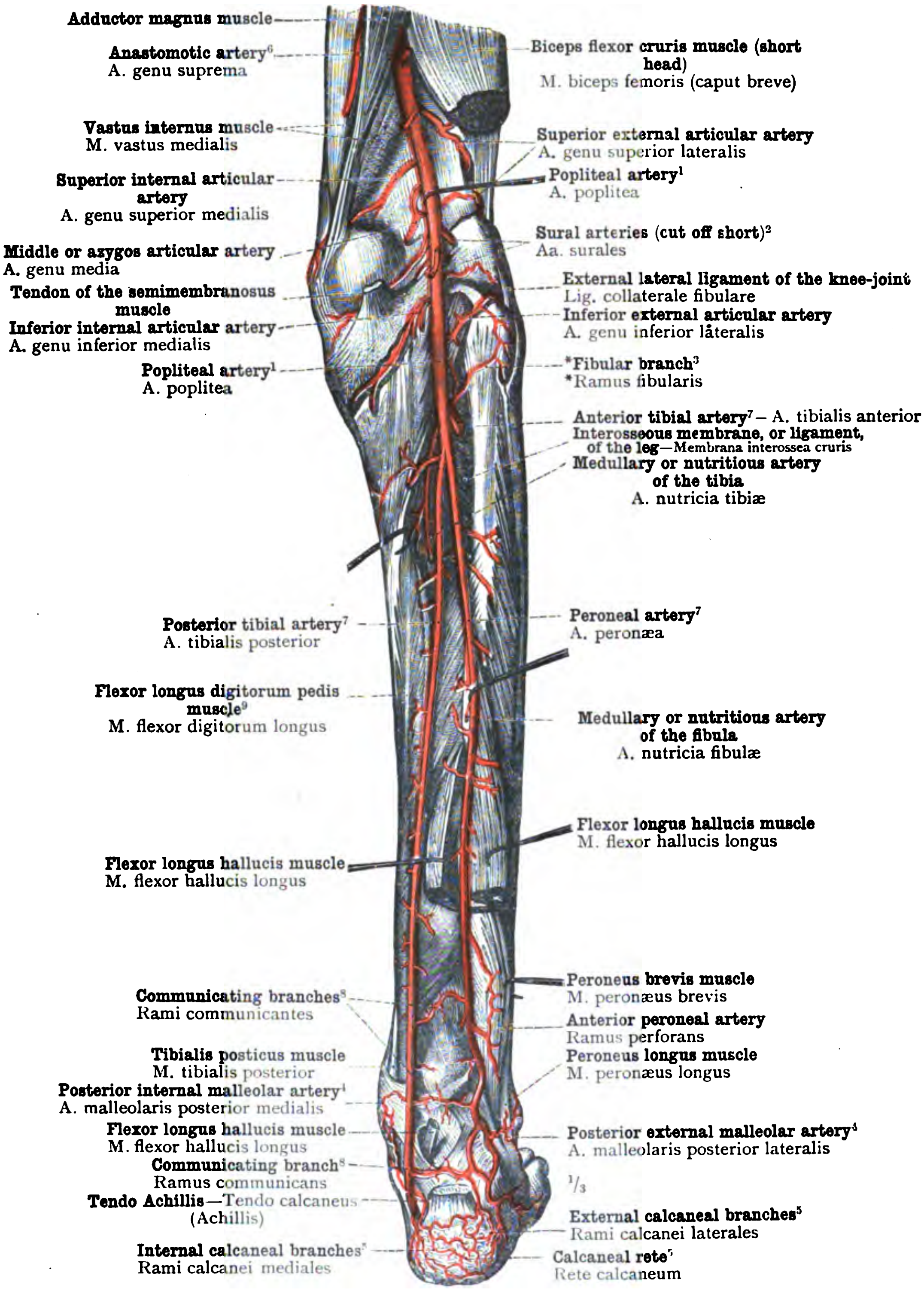
Arteries of the Back of the Leg.


Adductor magnus muscle
Vastus internus muscle
M. vastus medialis
Anastomotic artery[7]
A. genu suprema
Superior internal articular artery
A. genu superior medialis
Distal extremity of the semimembranosus muscle
Internal sural artery[2]
A. suralis medialis
Gastrocnemius muscle (inner head)
M. gastrocnemius (caput mediale)
Inferior internal articular artery
A. genu inferior medialis
Deep lamella of the deep fascia of the leg (fascia cruris) covering the popliteus muscle[8]
Posterior tibial artery
A. tibialis posterior
Soleus muscle (tibial origin)[4]
M. soleus (caput tibiale)
Tibialis posticus muscle
M. tibialis posterior
Flexor longus digitorum pedis muscle[10]
M. flexor digitorum longus
Posterior internal malleolar artery[5]
A. malleolaris posterior medialis
Communicating branch[9]
Ramus communicans
Internal calcaneal branches[6]—Rami calcanei mediales
Calcaneal rete[6]
Rete calcaneum
Popliteal artery[1]
A. poplitea
Biceps flexor cruris muscle (short head)
M. biceps femoris (caput breve)
Superior external articular artery
A. genu superior lateralis
External sural artery[2]
A. suralis lateralis
Middle or azygos articular artery
A. genu media
Plantaris muscle
Gastrocnemius muscle (outer head)
M. gastrocnemius (caput laterale)
Inferior external articular artery
A. genu inferior lateralis
Tendinous arch of the soleus muscle[3]
Arcus tendineus musculi solei
Soleus muscle (fibular origin)[4]
M. soleus (caput fibulare)
Peroneal artery
A. peronæa
Flexor longus hallucis muscle
M. flexor hallucis longus
1/3
Peroneus longus and brevis muscles
Mm. peronæi
Peroneal artery
A. peronæa
Posterior external malleolar artery[5]
A. malleolaris posterior lateralis
Tendo Achillis
Tendo calcaneus (Achillis)
External calcaneal branches[6]
Rami calcanei laterales

[1] See Appendix, note 245.
[2] See Appendix, note 232.
[3] See note 7 to p. 363 in Part III.
[4] See Appendix, note 246.
[5] See Appendix, note 236.
[6] See Appendix, note 242.
[7] See Appendix, note 226.
[8] See Appendix, note 244.
[9] See Appendix, note 247.
[10] Or *flexor perforans* muscle.

FIG. 1046.—THE POPLITEAL ARTERY, ARTERIA POPLITEA; ITS PASSAGE THROUGH THE *POPLITEAL CANAL, CANALIS POPLITEUS (*see Appendix, note* 245); THE POSTERIOR TIBIAL ARTERY AND THE PERONEAL ARTERY. RIGHT LEG AND FOOT, SEEN FROM BEHIND.

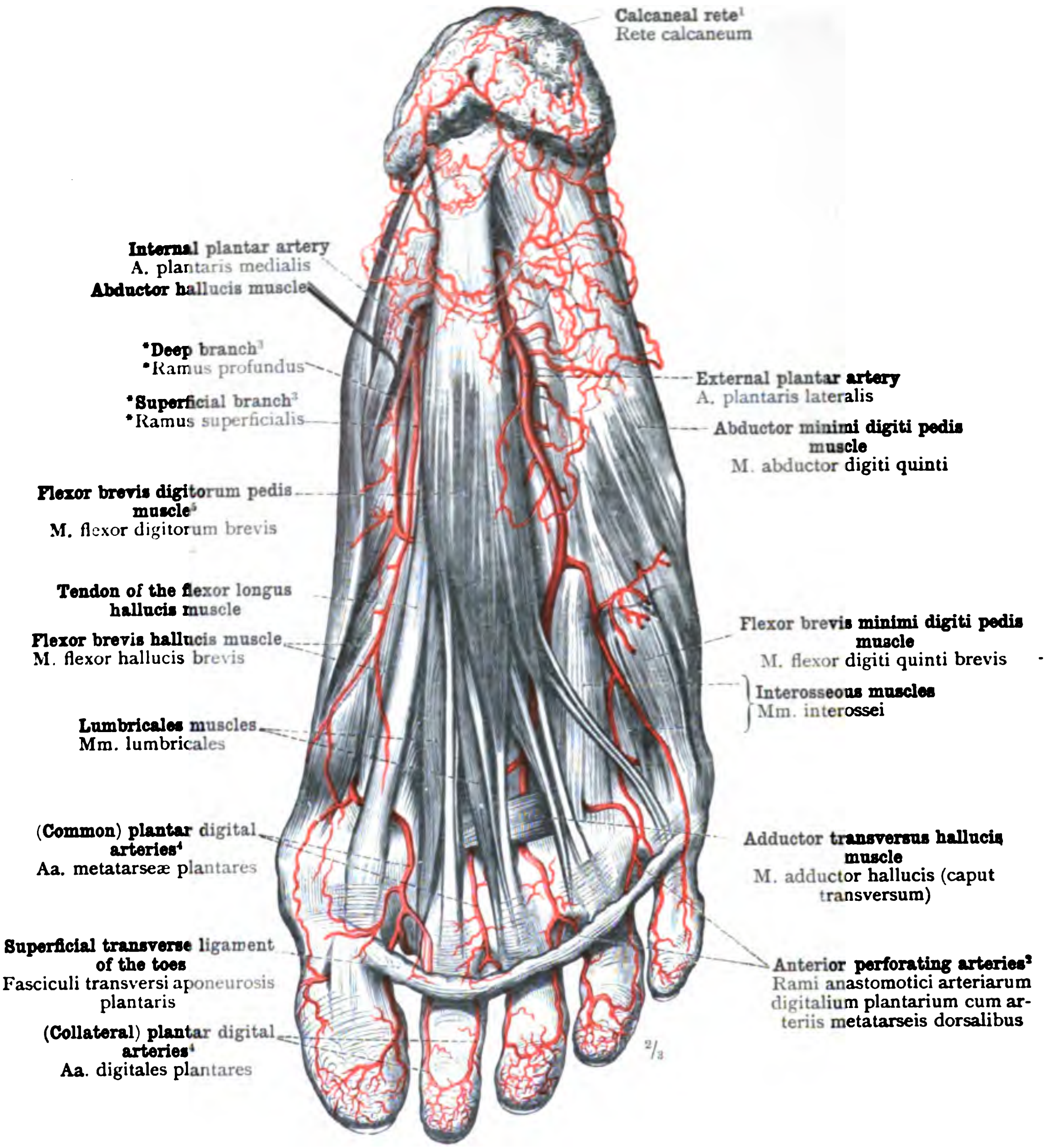
Arteries of the Back of the Leg.


Adductor magnus muscle
Anastomotic artery[6]
A. genu suprema
Vastus internus muscle
M. vastus medialis
Superior internal articular artery
A. genu superior medialis
Middle or azygos articular artery
A. genu media
Tendon of the semimembranosus muscle
Inferior internal articular artery
A. genu inferior medialis
Popliteal artery[1]
A. poplitea
Posterior tibial artery[7]
A. tibialis posterior
Flexor longus digitorum pedis muscle[9]
M. flexor digitorum longus
Flexor longus hallucis muscle
M. flexor hallucis longus
Communicating branches[8]
Rami communicantes
Tibialis posticus muscle
M. tibialis posterior
Posterior internal malleolar artery[4]
A. malleolaris posterior medialis
Flexor longus hallucis muscle
M. flexor hallucis longus
Communicating branch[8]
Ramus communicans
Tendo Achillis—Tendo calcaneus (Achillis)
Internal calcaneal branches[5]
Rami calcanei mediales
Biceps flexor cruris muscle (short head)
M. biceps femoris (caput breve)
Superior external articular artery
A. genu superior lateralis
Popliteal artery[1]
A. poplitea
Sural arteries (cut off short)[2]
Aa. surales
External lateral ligament of the knee-joint
Lig. collaterale fibulare
Inferior external articular artery
A. genu inferior lâteralis
*Fibular branch[3]
*Ramus fibularis
Anterior tibial artery[7] – A. tibialis anterior
Interosseous membrane, or ligament, of the leg—Membrana interossea cruris
Medullary or nutritious artery of the tibia
A. nutricia tibiæ
Peroneal artery[7]
A. peronæa
Medullary or nutritious artery of the fibula
A. nutricia fibulæ
Flexor longus hallucis muscle
M. flexor hallucis longus
Peroneus brevis muscle
M. peronæus brevis
Anterior peroneal artery
Ramus perforans
Peroneus longus muscle
M. peronæus longus
Posterior external malleolar artery[4]
A. malleolaris posterior lateralis
1/3
External calcaneal branches[5]
Rami calcanei laterales
Calcaneal rete[5]
Rete calcaneum

[1] See Appendix, note 245.
[2] See Appendix, note 232.
[3] See Appendix, note 248.
[4] See Appendix, note 236.
[5] See Appendix, note 242.
[6] See Appendix, note 226.
[7] See Appendix, note 249.
[8] See Appendix, note 247.
[9] Or *flexor perforans* muscle.

Fig. 1047 —The Articular Branches of the Popliteal Artery; the Origin of the Anterior Tibial Artery (*see Appendix, note* 249); the Medullary or Nutritious Arteries of the Tibia and the Fibula, Arteriæ Nutriciæ Tibiæ et Fibulæ; the Terminal Division of the Peroneal Artery. Right Leg and Foot, seen from Behind.

Arteries of the Back of the Leg.


Calcaneal rete[1]
Rete calcaneum
Internal plantar artery
A. plantaris medialis
Abductor hallucis muscle
*Deep branch[3]
*Ramus profundus
*Superficial branch[3]
*Ramus superficialis
Flexor brevis digitorum pedis muscle[5]
M. flexor digitorum brevis
Tendon of the flexor longus hallucis muscle
Flexor brevis hallucis muscle
M. flexor hallucis brevis
Lumbricales muscles
Mm. lumbricales
(Common) plantar digital arteries[4]
Aa. metatarseæ plantares
Superficial transverse ligament of the toes
Fasciculi transversi aponeurosis plantaris
(Collateral) plantar digital arteries[4]
Aa. digitales plantares
External plantar artery
A. plantaris lateralis
Abductor minimi digiti pedis muscle
M. abductor digiti quinti
Flexor brevis minimi digiti pedis muscle
M. flexor digiti quinti brevis
Interosseous muscles
Mm. interossei
Adductor transversus hallucis muscle
M. adductor hallucis (caput transversum)
Anterior perforating arteries[2]
Rami anastomotici arteriarum digitalium plantarium cum arteriis metatarseis dorsalibus
2/3

[1] See Appendix, note 242. [2] See Appendix, note 241. [3] See Appendix, note 250. [4] See Appendix, note 251. [5] Or *flexor perforatus* muscle.

FIG. 1048.—SUPERFICIAL ARTERIES OF THE SOLE OF THE FOOT: THE CALCANEAL RETE, RETE CALCANEUM (*see Appendix, note* 242), AND PART OF THE PLANTAR RETE (*see Appendix, note* 243); THE EXTERNAL PLANTAR ARTERY, ARTERIA PLANTARIS LATERALIS, AND ITS SUPERFICIAL DISTRIBUTION; THE INTERNAL PLANTAR ARTERY, ARTERIA PLANTARIS MEDIALIS, AND ITS DIVISION INTO *SUPERFICIAL AND *DEEP BRANCHES, *RAMUS SUPERFICIALIS ET *RAMUS PROFUNDUS (*see Appendix, note* 250); THE (COMMON) PLANTAR DIGITAL ARTERIES, ARTERIÆ METATARSEÆ PLANTARES (*see Appendix, note* 251); THE (COLLATERAL) PLANTAR DIGITAL ARTERIES, ARTERIÆ DIGITALES PLANTARES (*see Appendix, note* 251), AND THE ANTERIOR PERFORATING ARTERIES (*see Appendix, note* 241). PLANTAR ASPECT OF THE RIGHT FOOT.

The deep fascia of the sole or plantar fascia (aponeurosis plantaris) was removed, except for the superficial transverse ligament of the toes (fasciculi transversi aponeurosis plantaris); in the heel, the subcutaneous pad of fat was left intact.

Arteries of the Sole of the Foot.

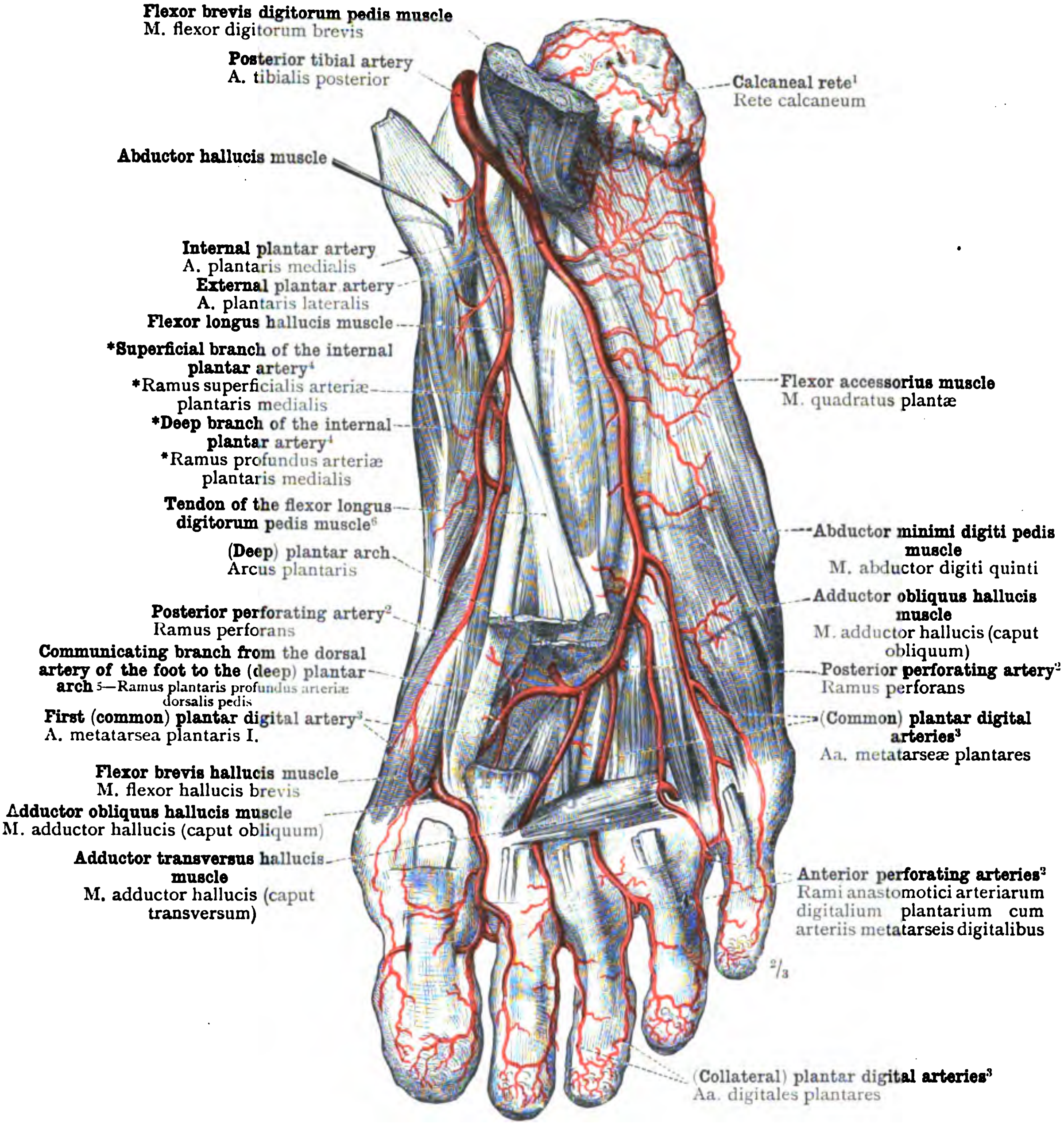

Flexor brevis digitorum pedis muscle
M. flexor digitorum brevis
Posterior tibial artery
A. tibialis posterior
Abductor hallucis muscle
Internal plantar artery
A. plantaris medialis
External plantar artery
A. plantaris lateralis
Flexor longus hallucis muscle
*Superficial branch of the internal plantar artery[4]
*Ramus superficialis arteriæ plantaris medialis
*Deep branch of the internal plantar artery[4]
*Ramus profundus arteriæ plantaris medialis
Tendon of the flexor longus digitorum pedis muscle[6]
(Deep) plantar arch
Arcus plantaris
Posterior perforating artery[2]
Ramus perforans
Communicating branch from the dorsal artery of the foot to the (deep) plantar arch[5]—Ramus plantaris profundus arteriæ dorsalis pedis
First (common) plantar digital artery[3]
A. metatarsea plantaris I.
Flexor brevis hallucis muscle
M. flexor hallucis brevis
Adductor obliquus hallucis muscle
M. adductor hallucis (caput obliquum)
Adductor transversus hallucis muscle
M. adductor hallucis (caput transversum)
Calcaneal rete[1]
Rete calcaneum
Flexor accessorius muscle
M. quadratus plantæ
Abductor minimi digiti pedis muscle
M. abductor digiti quinti
Adductor obliquus hallucis muscle
M. adductor hallucis (caput obliquum)
Posterior perforating artery[2]
Ramus perforans
(Common) plantar digital arteries[3]
Aa. metatarseæ plantares
Anterior perforating arteries[3]
Rami anastomotici arteriarum digitalium plantarium cum arteriis metatarseis digitalibus
2/3
(Collateral) plantar digital arteries[3]
Aa. digitales plantares

FIG. 1049.—DEEP ARTERIES OF THE SOLE OF THE FOOT: THE (DEEP) PLANTAR ARCH[7]; THE COMMON[3] AND THE COLLATERAL[3] PLANTAR DIGITAL ARTERIES.

In the preparation shown in Fig. 1048, in order to expose fully the two terminal branches of the posterior tibial artery, the abductor hallucis muscle was detached from the os calcis and turned outwards, the short flexor of the toes was cut across near its hinder extremity, its proximal segment being turned backwards, and its distal segment cut away as far forward as the heads of the metatarsal bones. After the partial removal of the tendons of the long flexor of the toes and of the long flexor of the great toe as well as of the adductor obliquus hallucis, the (deep) plantar arch was exposed, together with the posterior perforating and the (common) plantar digital arteries.

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[1] See Appendix, note 242. [2] See Appendix, note 241. [3] See Appendix, note 251. [4] See Appendix, note 250.

[5] Or *first posterior perforating artery*—see Appendix, note 242. [6] Or *flexor perforans* muscle.

[7] (*Deep*) *Plantar Arch.*—This is most commonly spoken of as the *plantar arch*, without qualification. Toldt also calls it simply ***arcus* (*arteriosus*) *plantaris*.** Some authorities, however, describe also a *superficial plantar arch*. (See Appendix, note 250.)—TR.

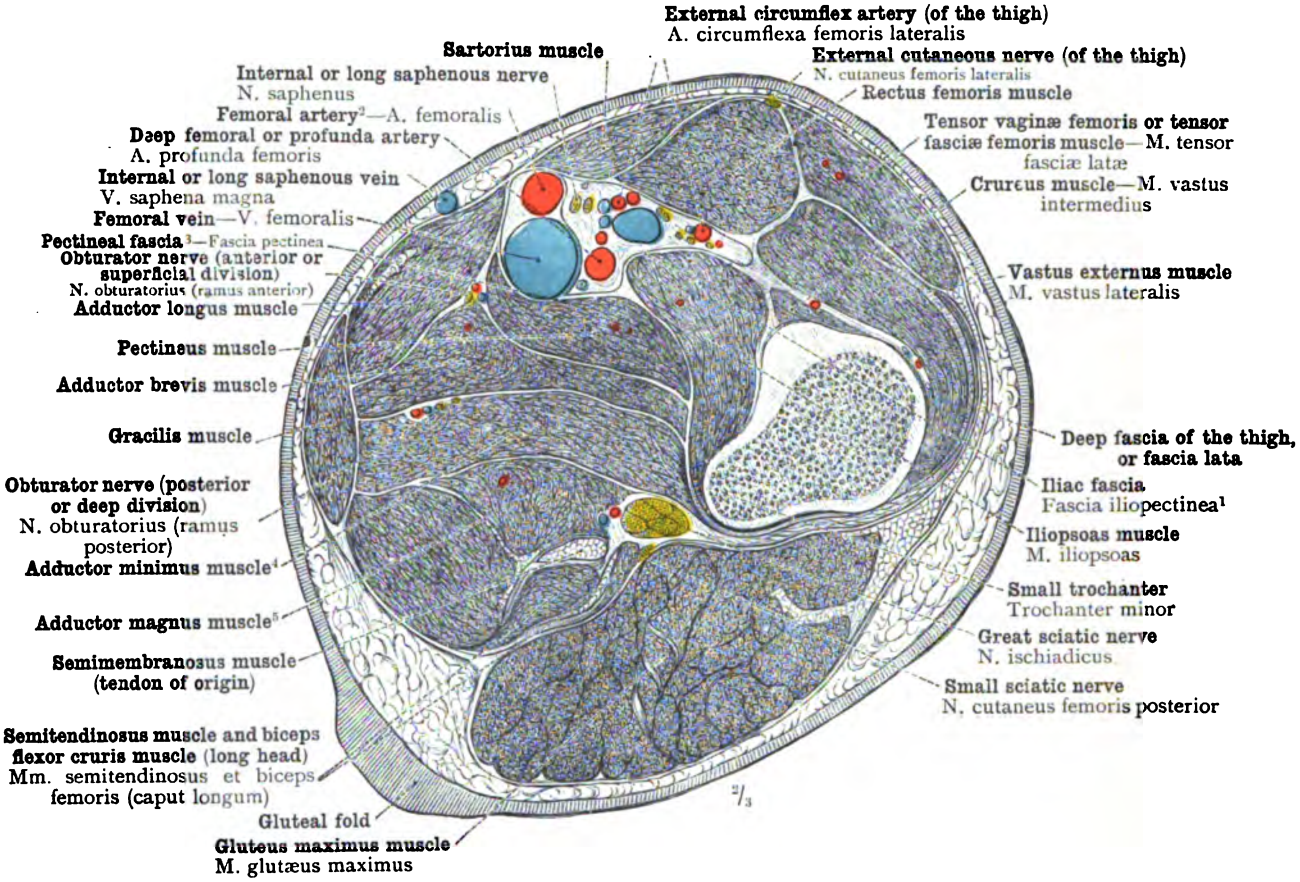
External circumflex artery (of the thigh)
A. circumflexa femoris lateralis
Sartorius muscle
External cutaneous nerve (of the thigh)
N. cutaneus femoris lateralis
Internal or long saphenous nerve
N. saphenus
Rectus femoris muscle
Femoral artery²—A. femoralis
Tensor vaginæ femoris or tensor fasciæ femoris muscle—M. tensor fasciæ latæ
Deep femoral or profunda artery
A. profunda femoris
Internal or long saphenous vein
V. saphena magna
Crureus muscle—M. vastus intermedius
Femoral vein—V. femoralis
Pectineal fascia³—Fascia pectinea
Obturator nerve (anterior or superficial division)
N. obturatorius (ramus anterior)
Vastus externus muscle
M. vastus lateralis
Adductor longus muscle
Pectineus muscle
Adductor brevis muscle
Gracilis muscle
Deep fascia of the thigh, or fascia lata
Obturator nerve (posterior or deep division)
N. obturatorius (ramus posterior)
Iliac fascia
Fascia iliopectinea¹
Iliopsoas muscle
M. iliopsoas
Adductor minimus muscle⁴
Small trochanter
Trochanter minor
Adductor magnus muscle⁵
Great sciatic nerve
N. ischiadicus
Semimembranosus muscle (tendon of origin)
Small sciatic nerve
N. cutaneus femoris posterior
Semitendinosus muscle and biceps flexor cruris muscle (long head)
Mm. semitendinosus et biceps femoris (caput longum)
²/₃
Gluteal fold
Gluteus maximus muscle
M. glutæus maximus

FIG. 1050.—TRANSVERSE SECTION THROUGH THE RIGHT THIGH AT THE LEVEL OF THE SMALL TROCHANTER; UPPER SURFACE OF LOWER SEGMENT.

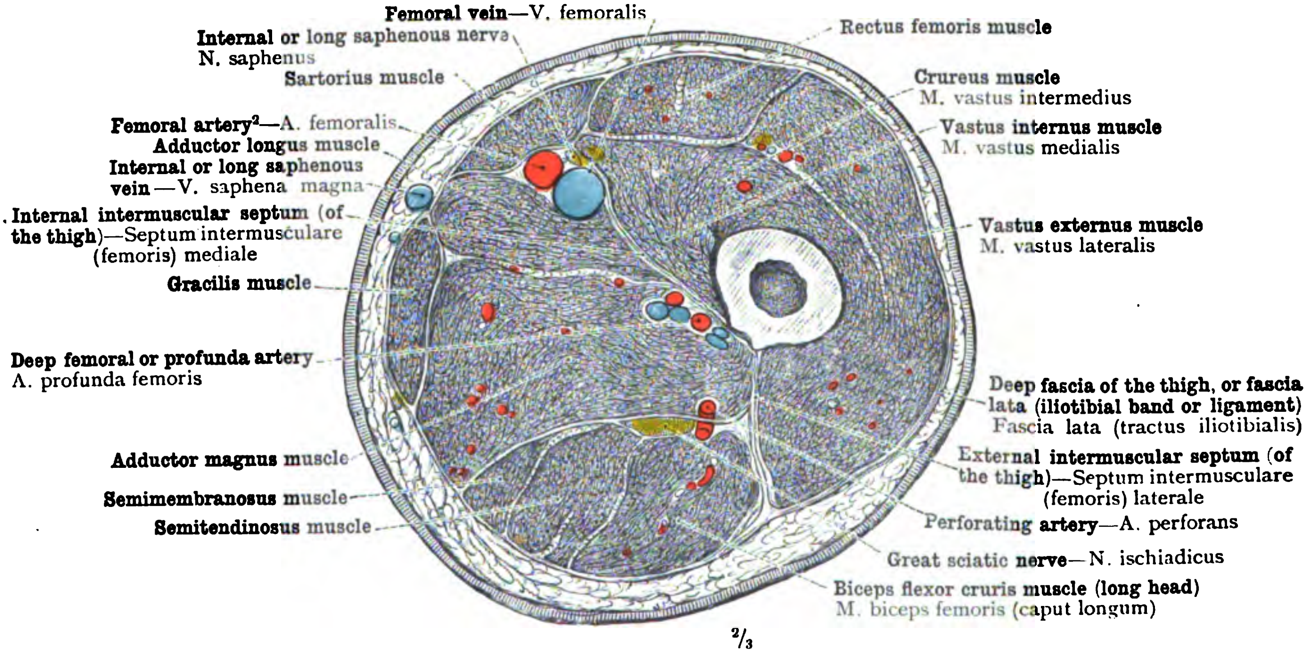
Femoral vein—V. femoralis
Internal or long saphenous nerve
N. saphenus
Rectus femoris muscle
Sartorius muscle
Crureus muscle
M. vastus intermedius
Femoral artery²—A. femoralis
Adductor longus muscle
Vastus internus muscle
M. vastus medialis
Internal or long saphenous vein—V. saphena magna
Internal intermuscular septum (of the thigh)—Septum intermusculare (femoris) mediale
Vastus externus muscle
M. vastus lateralis
Gracilis muscle
Deep femoral or profunda artery
A. profunda femoris
Deep fascia of the thigh, or fascia lata (iliotibial band or ligament)
Fascia lata (tractus iliotibialis)
External intermuscular septum (of the thigh)—Septum intermusculare (femoris) laterale
Adductor magnus muscle
Semimembranosus muscle
Perforating artery—A. perforans
Semitendinosus muscle
Great sciatic nerve—N. ischiadicus
Biceps flexor cruris muscle (long head)
M. biceps femoris (caput longum)
²/₃

FIG. 1051.—TRANSVERSE SECTION THROUGH THE RIGHT THIGH, A LITTLE ABOVE THE MIDDLE; UPPER SURFACE OF LOWER SEGMENT.

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[1] See Appendix, note 252.

[2] See Appendix, note 223.

[3] See Appendix, note 253.

[4] See note 2 to p. 644.

[5] See Appendix, note 231.

Topographical Anatomy of the Thigh.

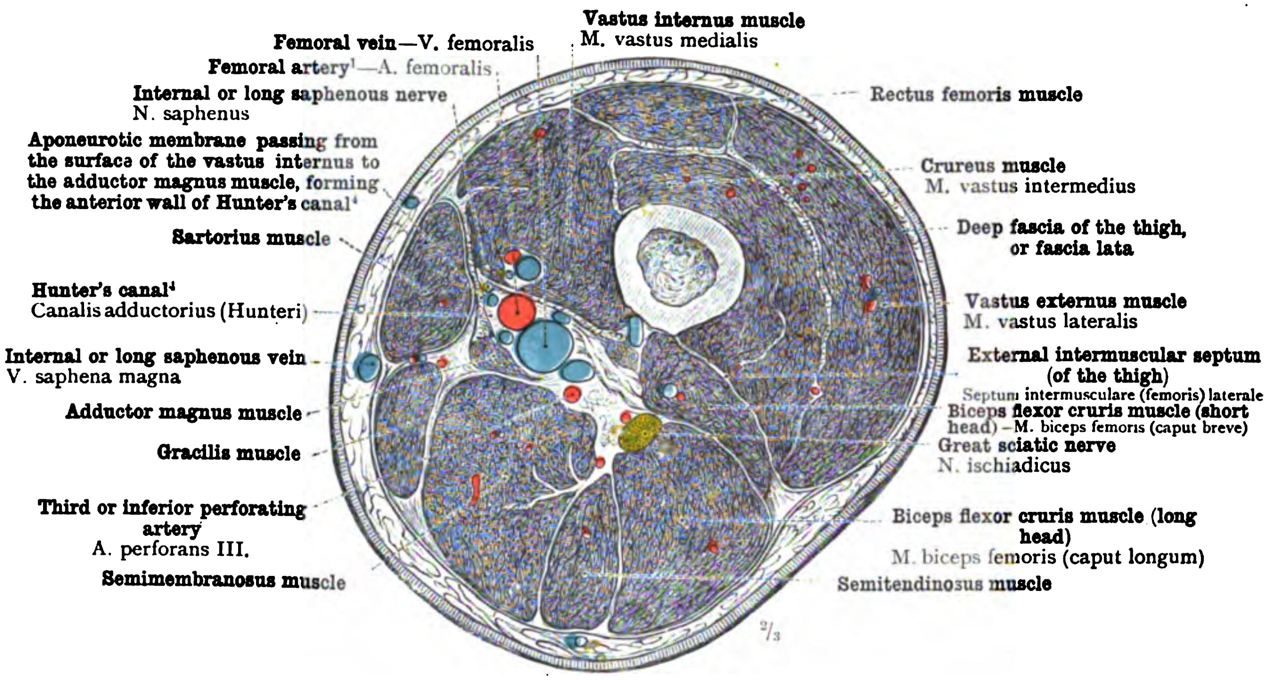
Femoral vein—V. femoralis
Vastus internus muscle
M. vastus medialis
Femoral artery[1]—A. femoralis
Internal or long saphenous nerve
N. saphenus
Rectus femoris muscle
Aponeurotic membrane passing from the surface of the vastus internus to the adductor magnus muscle, forming the anterior wall of Hunter's canal[4]
Crureus muscle
M. vastus intermedius
Sartorius muscle
Deep fascia of the thigh, or fascia lata
Hunter's canal[4]
Canalis adductorius (Hunteri)
Vastus externus muscle
M. vastus lateralis
Internal or long saphenous vein
V. saphena magna
External intermuscular septum (of the thigh)
Septum intermusculare (femoris) laterale
Adductor magnus muscle
Biceps flexor cruris muscle (short head)—M. biceps femoris (caput breve)
Gracilis muscle
Great sciatic nerve
N. ischiadicus
Third or inferior perforating artery
A. perforans III.
Biceps flexor cruris muscle (long head)
M. biceps femoris (caput longum)
Semimembranosus muscle
Semitendinosus muscle
2/3

FIG. 1052.—TRANSVERSE SECTION THROUGH THE RIGHT THIGH, A LITTLE ABOVE THE OPENING IN THE ADDUCTOR MAGNUS MUSCLE THROUGH WHICH THE FEMORAL VESSELS PASS INTO THE POPLITEAL SPACE (HIATUS ADDUCTORIUS HUNTERI); UPPER SURFACE OF LOWER SEGMENT.

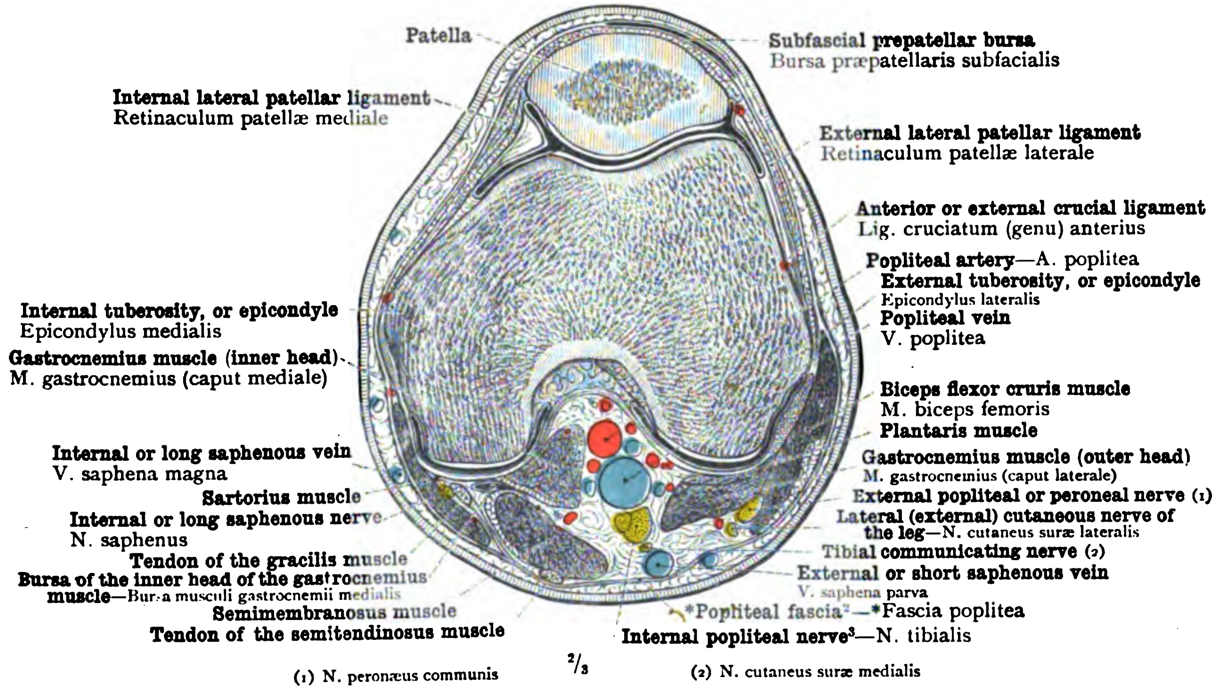
Patella
Subfascial prepatellar bursa
Bursa præpatellaris subfacialis
Internal lateral patellar ligament
Retinaculum patellæ mediale
External lateral patellar ligament
Retinaculum patellæ laterale
Anterior or external crucial ligament
Lig. cruciatum (genu) anterius
Popliteal artery—A. poplitea
External tuberosity, or epicondyle
Epicondylus lateralis
Internal tuberosity, or epicondyle
Epicondylus medialis
Popliteal vein
V. poplitea
Gastrocnemius muscle (inner head)
M. gastrocnemius (caput mediale)
Biceps flexor cruris muscle
M. biceps femoris
Plantaris muscle
Internal or long saphenous vein
V. saphena magna
Gastrocnemius muscle (outer head)
M. gastrocnemius (caput laterale)
Sartorius muscle
External popliteal or peroneal nerve (1)
Internal or long saphenous nerve
N. saphenus
Lateral (external) cutaneous nerve of the leg—N. cutaneus suræ lateralis
Tendon of the gracilis muscle
Tibial communicating nerve (2)
Bursa of the inner head of the gastrocnemius muscle—Bursa musculi gastrocnemii medialis
External or short saphenous vein
V. saphena parva
Semimembranosus muscle
*Popliteal fascia[2]—*Fascia poplitea
Tendon of the semitendinosus muscle
Internal popliteal nerve[3]—N. tibialis
(1) N. peronæus communis
2/3
(2) N. cutaneus suræ medialis

FIG. 1053.—TRANSVERSE SECTION THROUGH THE RIGHT KNEE, PASSING THROUGH THE MIDDLE OF THE PATELLA; UPPER SURFACE OF LOWER SEGMENT.

---

[1] See Appendix, note 223.

[2] **Popliteal Fascia*.—The name of *fascia poplitea* is given by the author to that portion of the deep fascia of the lower extremity which forms the roof of the popliteal space. The name is not used by Quain or Macalister.—TR.

[3] See Appendix, note 254.

[4] See Appendix, note 228.

Topographical Anatomy of the Thigh and of the Region of the Knee.

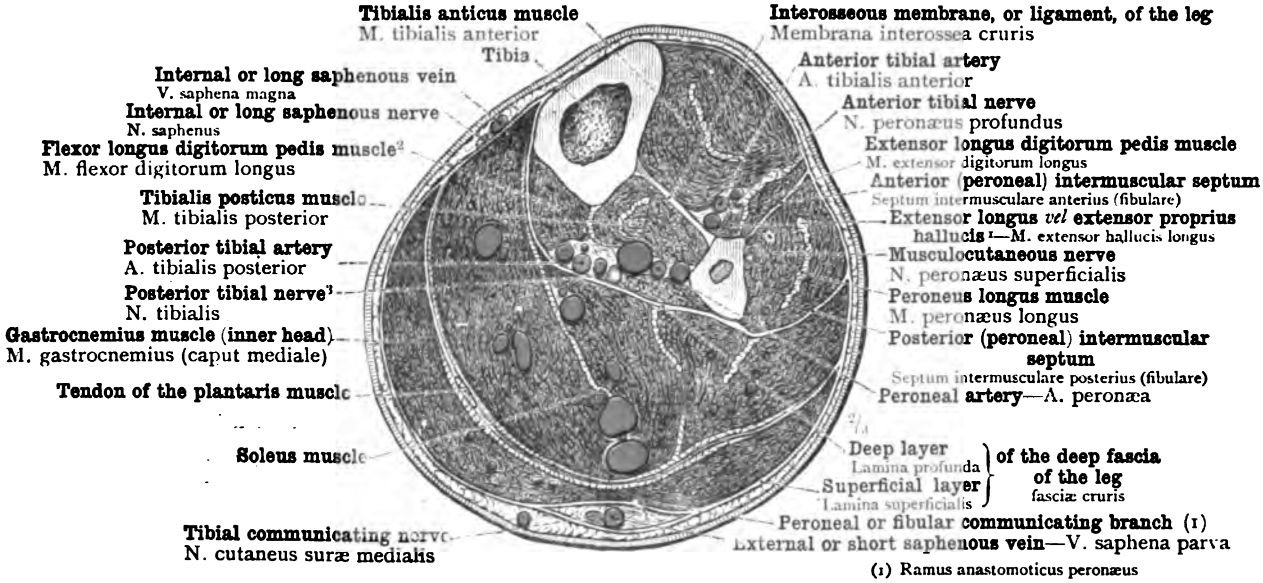
Tibialis anticus muscle
M. tibialis anterior
Tibia
Interosseous membrane, or ligament, of the leg
Membrana interossea cruris
Anterior tibial artery
A. tibialis anterior
Anterior tibial nerve
N. peronæus profundus
Internal or long saphenous vein
V. saphena magna
Internal or long saphenous nerve
N. saphenus
Flexor longus digitorum pedis muscle[2]
M. flexor digitorum longus
Extensor longus digitorum pedis muscle
M. extensor digitorum longus
Anterior (peroneal) intermuscular septum
Septum intermusculare anterius (fibulare)
Tibialis posticus muscle
M. tibialis posterior
Extensor longus vel extensor proprius hallucis[1]—M. extensor hallucis longus
Posterior tibial artery
A. tibialis posterior
Musculocutaneous nerve
N. peronæus superficialis
Posterior tibial nerve[3]
N. tibialis
Peroneus longus muscle
M. peronæus longus
Gastrocnemius muscle (inner head)
M. gastrocnemius (caput mediale)
Posterior (peroneal) intermuscular septum
Septum intermusculare posterius (fibulare)
Tendon of the plantaris muscle
Peroneal artery—A. peronæa
2/3
Soleus muscle
Deep layer
Lamina profunda
Superficial layer
Lamina superficialis
of the deep fascia of the leg
fasciæ cruris
Peroneal or fibular communicating branch (1)
Tibial communicating nerve
N. cutaneus suræ medialis
External or short saphenous vein—V. saphena parva
(1) Ramus anastomoticus peronæus

FIG. 1054.—TRANSVERSE SECTION THROUGH THE RIGHT LEG, A LITTLE ABOVE THE MIDDLE; UPPER SURFACE OF LOWER SEGMENT.

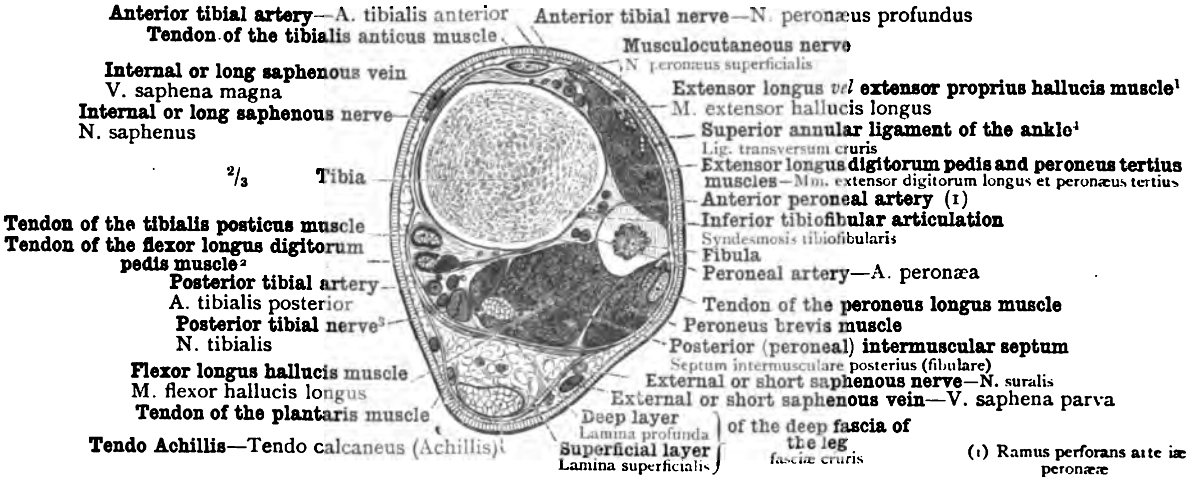
Anterior tibial artery—A. tibialis anterior
Tendon of the tibialis anticus muscle
Anterior tibial nerve—N. peronæus profundus
Musculocutaneous nerve
N. peronæus superficialis
Internal or long saphenous vein
V. saphena magna
Extensor longus vel extensor proprius hallucis muscle[1]
M. extensor hallucis longus
Internal or long saphenous nerve
N. saphenus
Superior annular ligament of the ankle[4]
Lig. transversum cruris
2/3
Tibia
Extensor longus digitorum pedis and peroneus tertius muscles—Mm. extensor digitorum longus et peronæus tertius
Anterior peroneal artery (1)
Tendon of the tibialis posticus muscle
Inferior tibiofibular articulation
Syndesmosis tibiofibularis
Tendon of the flexor longus digitorum pedis muscle[2]
Fibula
Posterior tibial artery
A. tibialis posterior
Peroneal artery—A. peronæa
Posterior tibial nerve[3]
N. tibialis
Tendon of the peroneus longus muscle
Peroneus brevis muscle
Posterior (peroneal) intermuscular septum
Septum intermusculare posterius (fibulare)
Flexor longus hallucis muscle
M. flexor hallucis longus
External or short saphenous nerve—N. suralis
Tendon of the plantaris muscle
External or short saphenous vein—V. saphena parva
Deep layer
Lamina profunda
Superficial layer
Lamina superficialis
of the deep fascia of the leg
fasciæ cruris
Tendo Achillis—Tendo calcaneus (Achillis)
(1) Ramus perforans arteriæ peronææ

FIG. 1055.—TRANSVERSE SECTION THROUGH THE RIGHT LEG, JUST ABOVE THE ANKLE-JOINT; UPPER SURFACE OF LOWER SEGMENT.

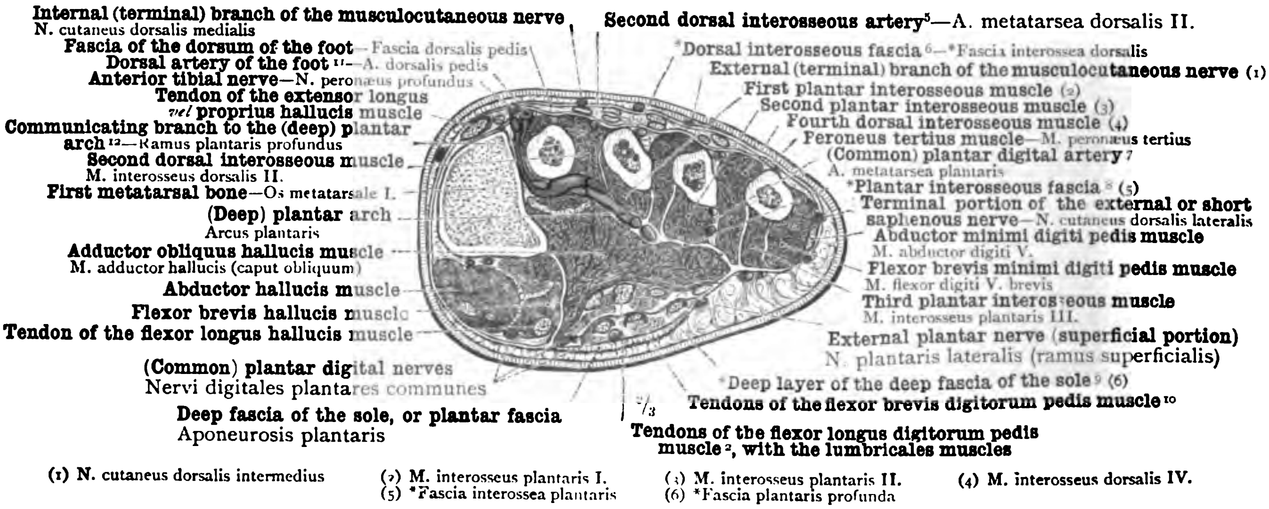
Internal (terminal) branch of the musculocutaneous nerve
N. cutaneus dorsalis medialis
Second dorsal interosseous artery[5]—A. metatarsea dorsalis II.
Fascia of the dorsum of the foot—Fascia dorsalis pedis
Dorsal interosseous fascia[6]—*Fascia interossea dorsalis
Dorsal artery of the foot[11]—A. dorsalis pedis
External (terminal) branch of the musculocutaneous nerve (1)
Anterior tibial nerve—N. peronæus profundus
Tendon of the extensor longus vel proprius hallucis muscle
First plantar interosseous muscle (2)
Second plantar interosseous muscle (3)
Fourth dorsal interosseous muscle (4)
Communicating branch to the (deep) plantar arch[12]—Ramus plantaris profundus
Peroneus tertius muscle—M. peronæus tertius
Second dorsal interosseous muscle
M. interosseus dorsalis II.
(Common) plantar digital artery[7]
A. metatarsea plantaris
First metatarsal bone—Os metatarsale I.
*Plantar interosseous fascia[8] (5)
(Deep) plantar arch
Arcus plantaris
Terminal portion of the external or short saphenous nerve—N. cutaneus dorsalis lateralis
Adductor obliquus hallucis muscle
M. adductor hallucis (caput obliquum)
Abductor minimi digiti pedis muscle
M. abductor digiti V.
Flexor brevis minimi digiti pedis muscle
M. flexor digiti V. brevis
Abductor hallucis muscle
Third plantar interosseous muscle
M. interosseus plantaris III.
Flexor brevis hallucis muscle
Tendon of the flexor longus hallucis muscle
External plantar nerve (superficial portion)
N. plantaris lateralis (ramus superficialis)
(Common) plantar digital nerves
Nervi digitales plantares communes
*Deep layer of the deep fascia of the sole[9] (6)
Tendons of the flexor brevis digitorum pedis muscle[10]
Deep fascia of the sole, or plantar fascia
Aponeurosis plantaris
2/3
Tendons of the flexor longus digitorum pedis muscle[2], with the lumbricales muscles
(1) N. cutaneus dorsalis intermedius
(2) M. interosseus plantaris I.
(5) *Fascia interossea plantaris
(3) M. interosseus plantaris II.
(6) *Fascia plantaris profunda
(4) M. interosseus dorsalis IV.

FIG. 1056.—CORONAL SECTION THROUGH THE RIGHT FOOT, PASSING THROUGH THE MIDDLE OF THE FIRST METATARSAL BONE; SURFACE OF DISTAL SEGMENT.

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[1] Regarding the nomenclature of this muscle, see note [2] to p. 364, in Part III.

[2] Or *flexor perforans* muscle.

[3] See Appendix, note 254.

[4] Known also as the *upper band* of the *anterior annular ligament of the ankle.*

[5] See Appendix, note 239.

[6] See Appendix, note 255.

[7] See Appendix, note 251.

[8] See Appendix, note 255.

[9] See Appendix, note 257.

[10] Or *flexor perforatus* muscle.

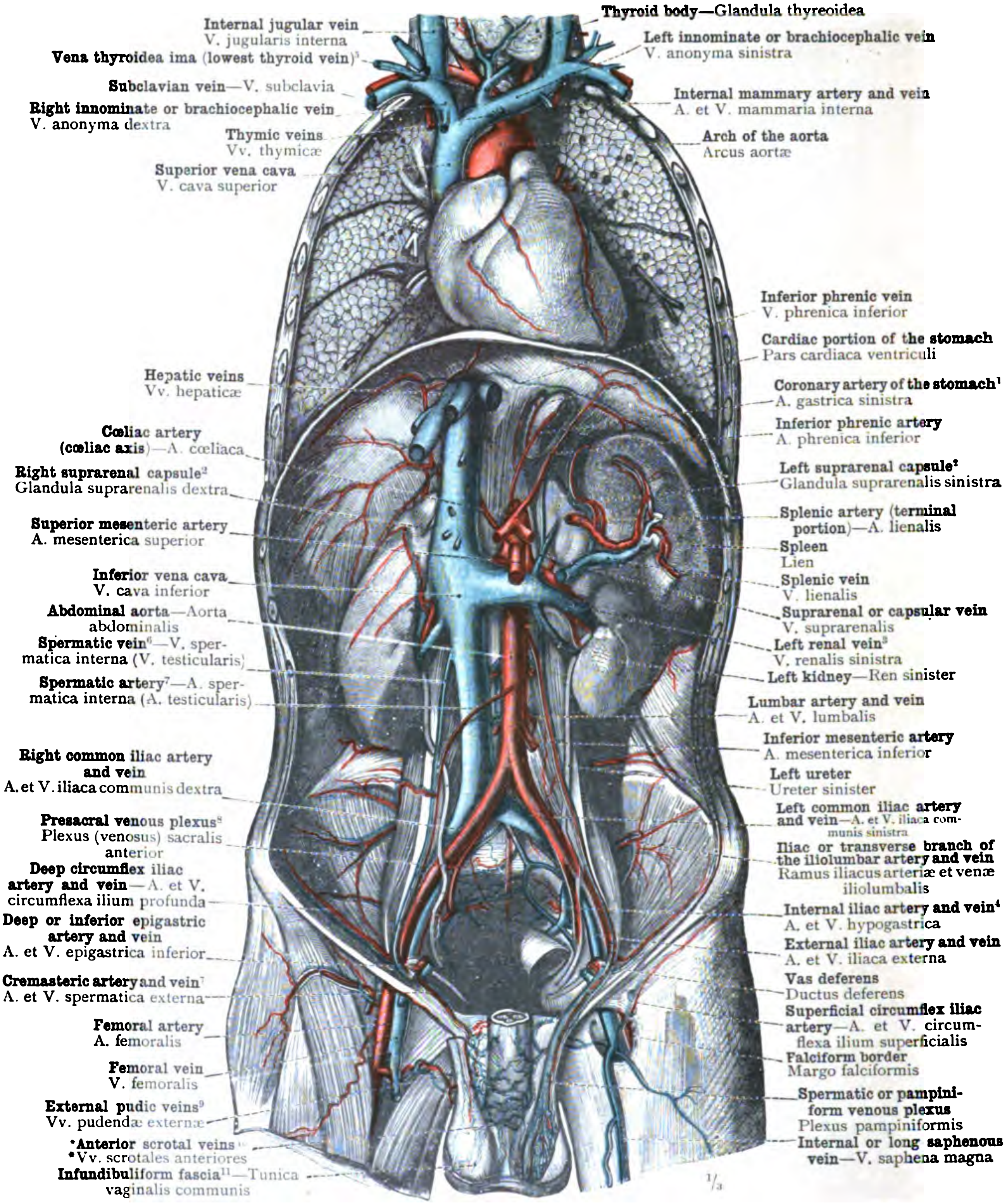
[11] Often known in England by its Latin name of *dorsalis pedis artery.*

[12] See Appendix, note 240.

Topographical Anatomy of the Leg and Foot.

VENÆ TRUNCI

THE VEINS OF THE TRUNK


Internal jugular vein
V. jugularis interna
Vena thyroidea ima (lowest thyroid vein)[5]
Subclavian vein—V. subclavia
Right innominate or brachiocephalic vein
V. anonyma dextra
Thymic veins
Vv. thymicæ
Superior vena cava
V. cava superior
Hepatic veins
Vv. hepaticæ
Cœliac artery
(**cœliac axis**)—A. cœliaca
Right suprarenal capsule[2]
Glandula suprarenalis dextra
Superior mesenteric artery
A. mesenterica superior
Inferior vena cava
V. cava inferior
Abdominal aorta—Aorta abdominalis
Spermatic vein[6]—V. spermatica interna (V. testicularis)
Spermatic artery[7]—A. spermatica interna (A. testicularis)
Right common iliac artery
and vein
A. et V. iliaca communis dextra
Presacral venous plexus[8]
Plexus (venosus) sacralis anterior
Deep circumflex iliac
artery and vein—A. et V. circumflexa ilium profunda
Deep or inferior epigastric
artery and vein
A. et V. epigastrica inferior
Cremasteric artery and vein[7]
A. et V. spermatica externa
Femoral artery
A. femoralis
Femoral vein
V. femoralis
External pudic veins[9]
Vv. pudendæ externæ
***Anterior** scrotal veins[10]
*Vv. scrotales anteriores
Infundibuliform fascia[11]—Tunica vaginalis communis
Thyroid body—Glandula thyreoidea
Left innominate or brachiocephalic vein
V. anonyma sinistra
Internal mammary artery and vein
A. et V. mammaria interna
Arch of the aorta
Arcus aortæ
Inferior phrenic vein
V. phrenica inferior
Cardiac portion of the stomach
Pars cardiaca ventriculi
Coronary artery of the stomach[1]
A. gastrica sinistra
Inferior phrenic artery
A. phrenica inferior
Left suprarenal capsule[2]
Glandula suprarenalis sinistra
Splenic artery (terminal portion)—A. lienalis
Spleen
Lien
Splenic vein
V. lienalis
Suprarenal or capsular vein
V. suprarenalis
Left renal vein[3]
V. renalis sinistra
Left kidney—Ren sinister
Lumbar artery and vein
A. et V. lumbalis
Inferior mesenteric artery
A. mesenterica inferior
Left ureter
Ureter sinister
Left common iliac artery and vein—A. et V. iliaca communis sinistra
Iliac or transverse branch of the iliolumbar artery and vein
Ramus iliacus arteriæ et venæ iliolumbalis
Internal iliac artery and vein[4]
A. et V. hypogastrica
External iliac artery and vein
A. et V. iliaca externa
Vas deferens
Ductus deferens
Superficial circumflex iliac artery—A. et V. circumflexa ilium superficialis
Falciform border
Margo falciformis
Spermatic or pampiniform venous plexus
Plexus pampiniformis
Internal or long saphenous vein—V. saphena magna
1/3

---

[1] Called by Macalister the *gastric artery*.

[2] Called also ***suprarenal body***, or ***adrenal***.

[3] Sometimes called the *emulgent veins*. See note [3] to p. 595.

[4] See Appendix, note [120].

[5] Companion to the *thyroidea ima artery*. See note [1] to p. 500.

[6] This vein is called by the author *vena spermatica interna* to distinguish it from the *vena spermatica externa*—the ***cremasteric vein*** of English anatomists.—Tr.

[7] See Appendix, note [129].

[8] See Appendix, note [258].

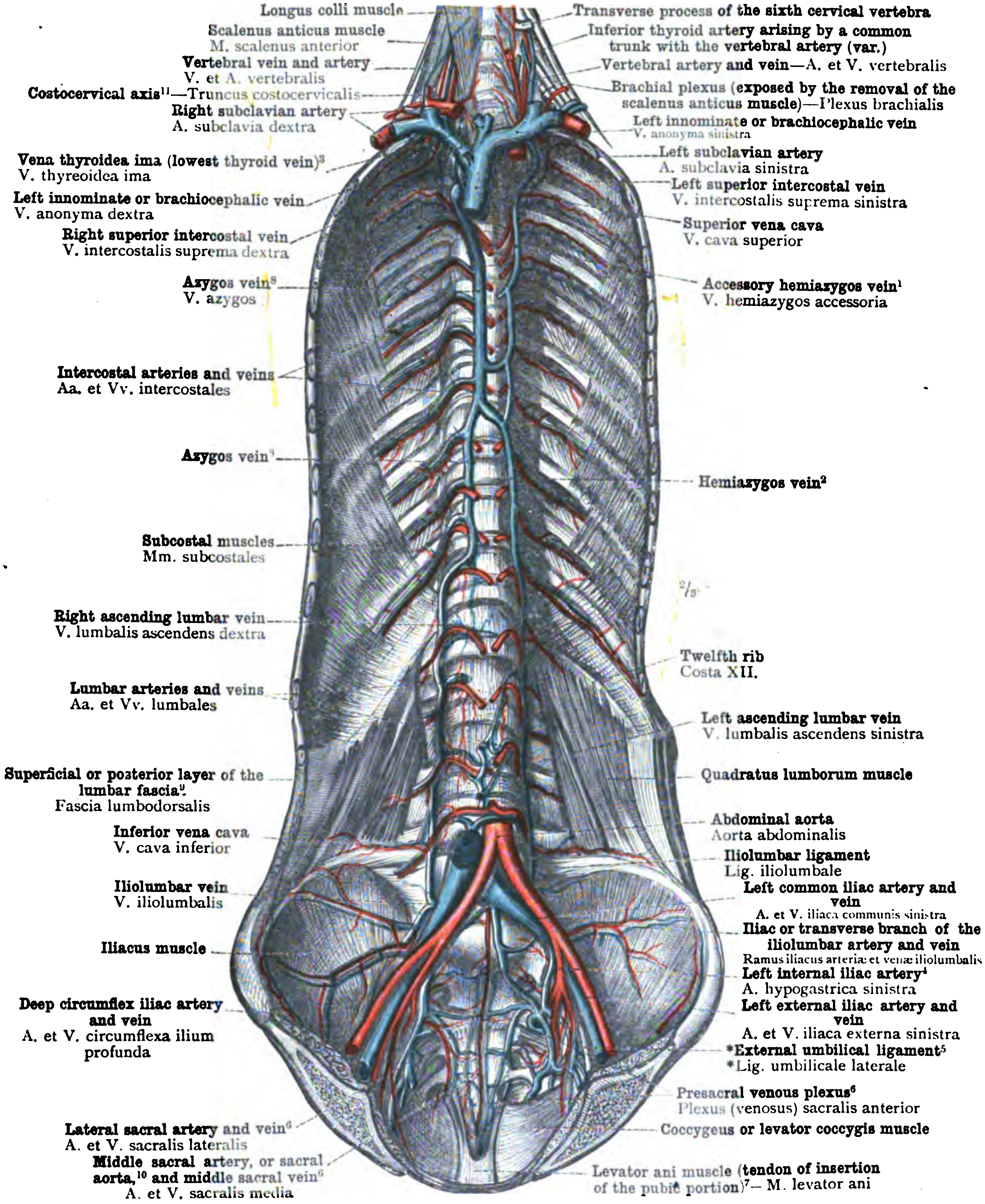
[9] Called by Macalister the *pubic veins*. See note on nomenclature of corresponding arteries (note 5 to p. 599).

[10] See Appendix, note [133].

[11] See Appendix to Part IV., note [68].

Fig. 1057.—The Superior and the Inferior Vena Cava; the Parietal and the Visceral Tributaries, Radices Parietales et Viscerales, of the Latter. The Abdominal Aorta, Aorta Abdominalis. Seen from Before.

The System of the Superior and the Inferior Venæ Cavæ.


Longus colli muscle
Scalenus anticus muscle
M. scalenus anterior
Vertebral vein and artery
V. et A. vertebralis
Costocervical axis[11]—Truncus costocervicalis
Right subclavian artery
A. subclavia dextra
Vena thyroidea ima (lowest thyroid vein)[3]
V. thyreoidea ima
Left innominate or brachiocephalic vein
V. anonyma dextra
Right superior intercostal vein
V. intercostalis suprema dextra
Azygos vein[8]
V. azygos
Intercostal arteries and veins
Aa. et Vv. intercostales
Azygos vein
Subcostal muscles
Mm. subcostales
Right ascending lumbar vein
V. lumbalis ascendens dextra
Lumbar arteries and veins
Aa. et Vv. lumbales
Superficial or posterior layer of the lumbar fascia[9]
Fascia lumbodorsalis
Inferior vena cava
V. cava inferior
Iliolumbar vein
V. iliolumbalis
Iliacus muscle
Deep circumflex iliac artery and vein
A. et V. circumflexa ilium profunda
Lateral sacral artery and vein[6]
A. et V. sacralis lateralis
Middle sacral artery, or sacral aorta,[10] and middle sacral vein[6]
A. et V. sacralis media
Transverse process of the sixth cervical vertebra
Inferior thyroid artery arising by a common trunk with the vertebral artery (var.)
Vertebral artery and vein—A. et V. vertebralis
Brachial plexus (exposed by the removal of the scalenus anticus muscle)—Plexus brachialis
Left innominate or brachiocephalic vein
V. anonyma sinistra
Left subclavian artery
A. subclavia sinistra
Left superior intercostal vein
V. intercostalis suprema sinistra
Superior vena cava
V. cava superior
Accessory hemiazygos vein[1]
V. hemiazygos accessoria
Hemiazygos vein[2]
2/5
Twelfth rib
Costa XII.
Left ascending lumbar vein
V. lumbalis ascendens sinistra
Quadratus lumborum muscle
Abdominal aorta
Aorta abdominalis
Iliolumbar ligament
Lig. iliolumbale
Left common iliac artery and vein
A. et V. iliaca communis sinistra
Iliac or transverse branch of the iliolumbar artery and vein
Ramus iliacus arteriæ et venæ iliolumbalis
Left internal iliac artery[4]
A. hypogastrica sinistra
Left external iliac artery and vein
A. et V. iliaca externa sinistra
*External umbilical ligament[5]
*Lig. umbilicale laterale
Presacral venous plexus[6]
Plexus (venosus) sacralis anterior
Coccygeus or levator coccygis muscle
Levator ani muscle (tendon of insertion of the pubic portion)[7]— M. levator ani

[1] Called also the *left upper azygos vein*.

[2] Known also as the *left lower* or *small azygos vein*.

[3] Companion to the *thyroidea ima artery*. See note [1] to p. 590.

[4] See Appendix, note [120].

[5] The remains of the obliterated *hypogastric artery* of the fœtus.—See note [4] to p. 387, in Part III.

[6] See Appendix, note [258].

[7] That portion of the levator ani muscle which is distinguished by Toldt as the *pars pubica* is by Savage called the *pubococcygeus muscle*. See note [6] to p. 529, in Part IV.

[8] Called also the *right* or *large azygos vein*.

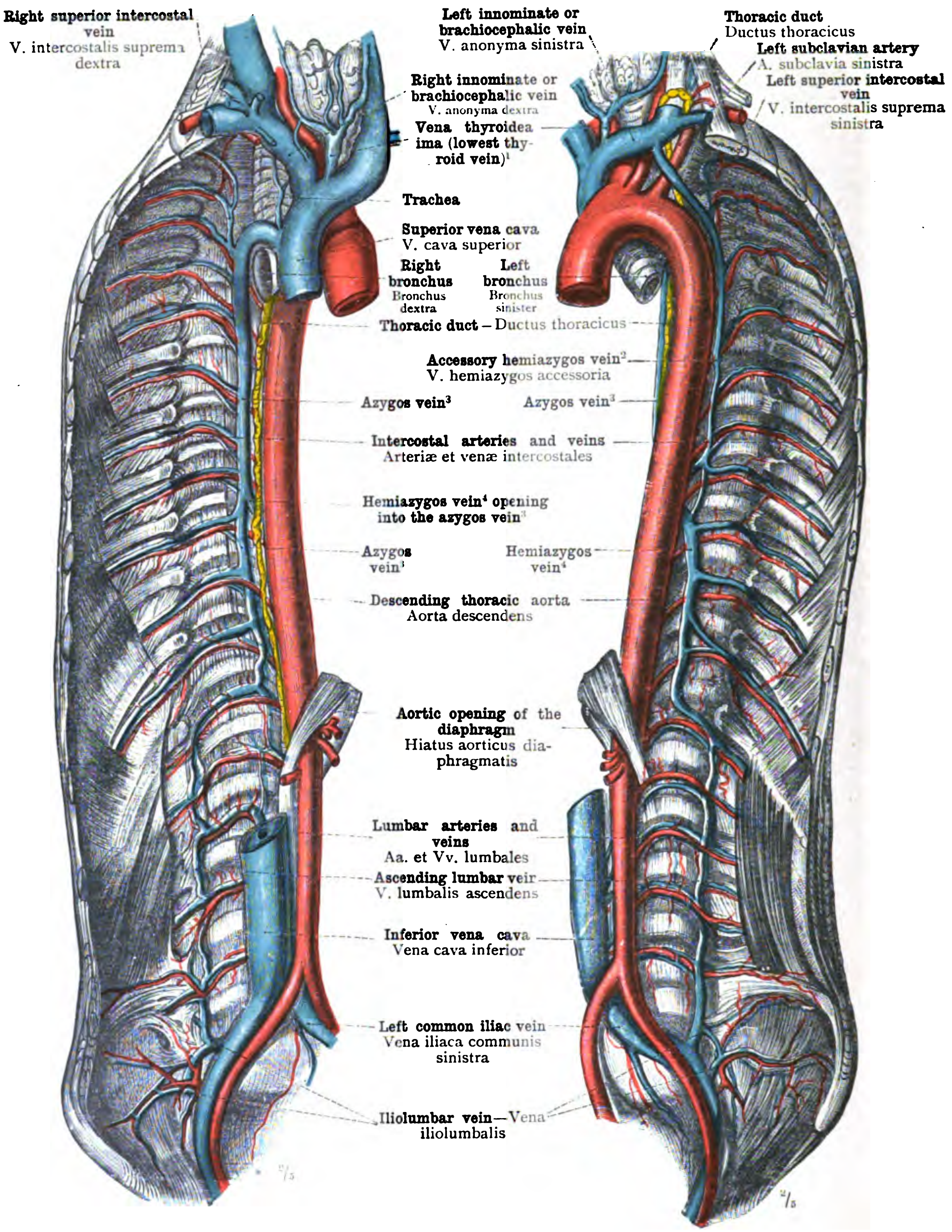
[9] See note [1] to p. 267 and note [1] to p. 285, in Part III.

[10] See Appendix, note [127].

[11] See Appendix, note [177].

FIG. 1058.—THE VEINS ON THE INNER SURFACE OF THE POSTERIOR WALL OF THE TRUNK. SEEN FROM BEFORE.

The System of the Azygos and Hemiazygos Veins.


Right superior intercostal vein
V. intercostalis suprema dextra
Left innominate or brachiocephalic vein
V. anonyma sinistra
Thoracic duct
Ductus thoracicus
Left subclavian artery
A. subclavia sinistra
Left superior intercostal vein
V. intercostalis suprema sinistra
Right innominate or brachiocephalic vein
V. anonyma dextra
Vena thyroidea ima (lowest thyroid vein)[1]
Trachea
Superior vena cava
V. cava superior
Right bronchus
Bronchus dextra
Left bronchus
Bronchus sinister
Thoracic duct – Ductus thoracicus
Accessory hemiazygos vein[2]
V. hemiazygos accessoria
Azygos vein[3]
Azygos vein[3]
Intercostal arteries and veins
Arteriæ et venæ intercostales
Hemiazygos vein[4] opening into the azygos vein[3]
Azygos vein[3]
Hemiazygos vein[4]
Descending thoracic aorta
Aorta descendens
Aortic opening of the diaphragm
Hiatus aorticus diaphragmatis
Lumbar arteries and veins
Aa. et Vv. lumbales
Ascending lumbar vein
V. lumbalis ascendens
Inferior vena cava
Vena cava inferior
Left common iliac vein
Vena iliaca communis sinistra
Iliolumbar vein—Vena iliolumbalis
2/5
2/5

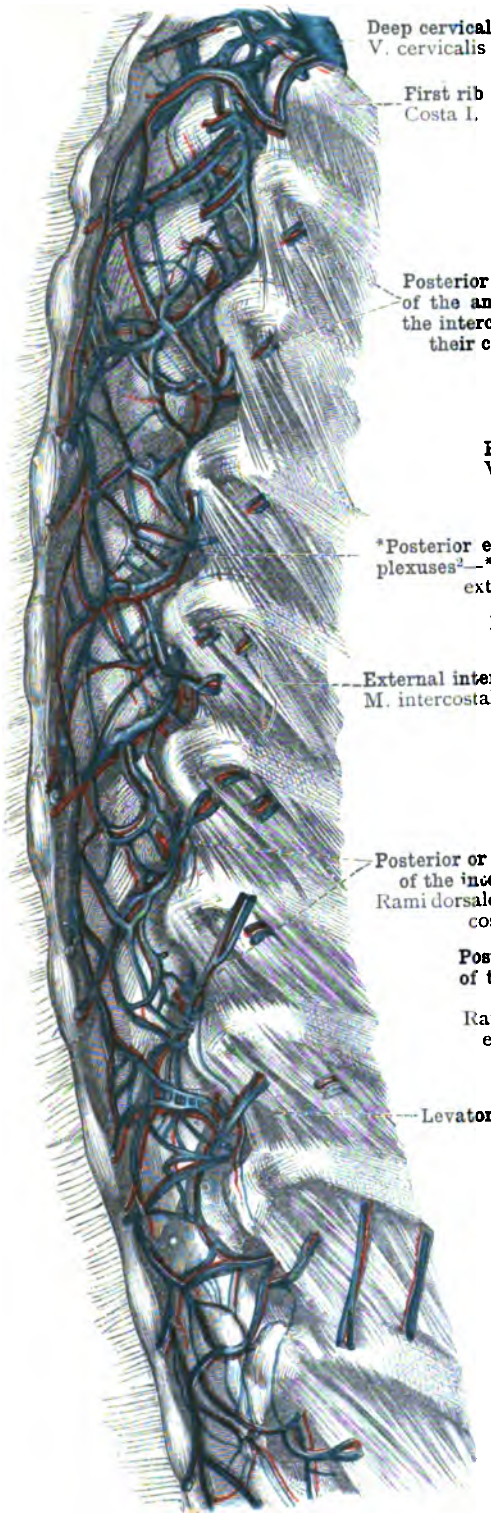
[1] Companion to the *thyroidea ima artery*. See note [1] to p. 590.
[3] Known also as the *right* or *large azygos vein*.

[2] Known also as the *left upper azygos vein*.
[4] Known also as the *left lower* or *small azygos vein*.

FIG. 1059.—SEEN FROM THE RIGHT SIDE.

FIG. 1060.—SEEN FROM THE LEFT SIDE.

The System of the Azygos and Hemiazygos Veins.


Deep cervical vein[1]
V. cervicalis profunda
First rib
Costa I.
Posterior or dorsal branches of the anterior divisions of the intercostal arteries with their companion veins
*Posterior external vertebral venous plexuses[2]—*Plexus venosi vertebrales externi posteriores
External intercostal muscle
M. intercostalis externus
Posterior or dorsal divisions of the intercostal veins
Rami dorsales venarum intercostalium
Levator costæ muscle
2/3

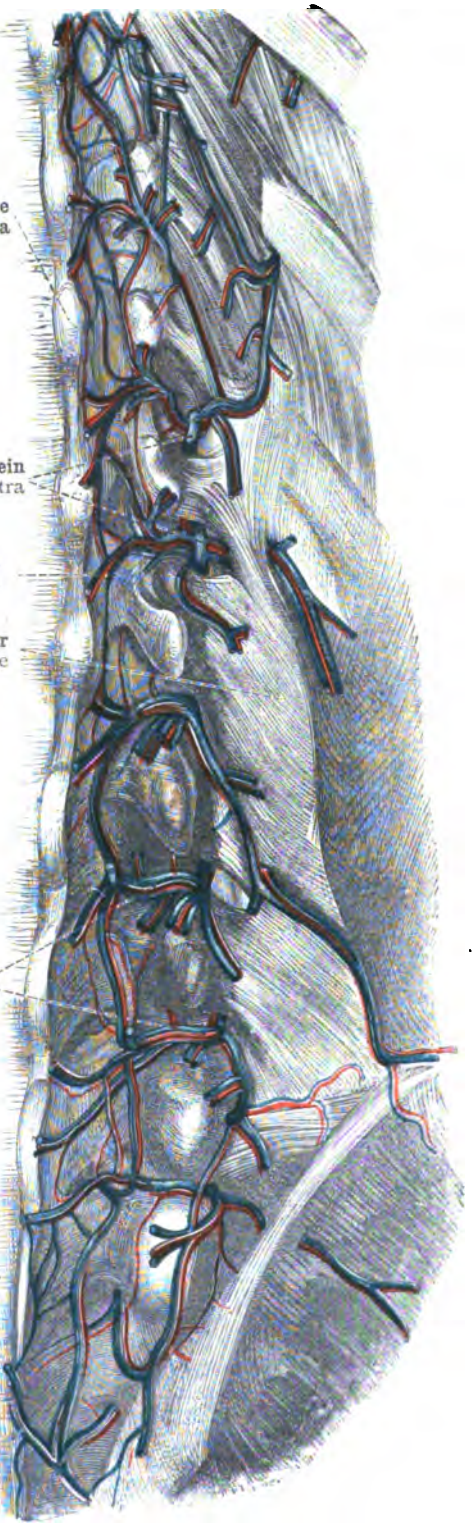

Spinous process of the twelfth dorsal vertebra
Right ascending lumbar vein
V. lumbalis ascendens dextra
Middle layer of the lumbar fascia—Lig. lumbocostale
Posterior or dorsal branches of the lumbar arteries and veins
Rami dorsales arteriarum et venarum lumbalium

FIG. 1061.—*POSTERIOR EXTERNAL VERTEBRAL VENOUS PLEXUS (*see Appendix, notes* 259 *and* 260) OF THE DORSAL REGION.

FIG. 1062.—*POSTERIOR EXTERNAL VERTEBRAL VENOUS PLEXUS (*see Appendix, notes* 259 *and* 260) OF THE LUMBAR AND SACRAL REGIONS.

Plexus venosi vertebrales externi posteriores—The posterior external vertebral venous plexuses.

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[1] Known also as the *posterior vertebral vein.*

[2] See Appendix, notes 259 and 260.

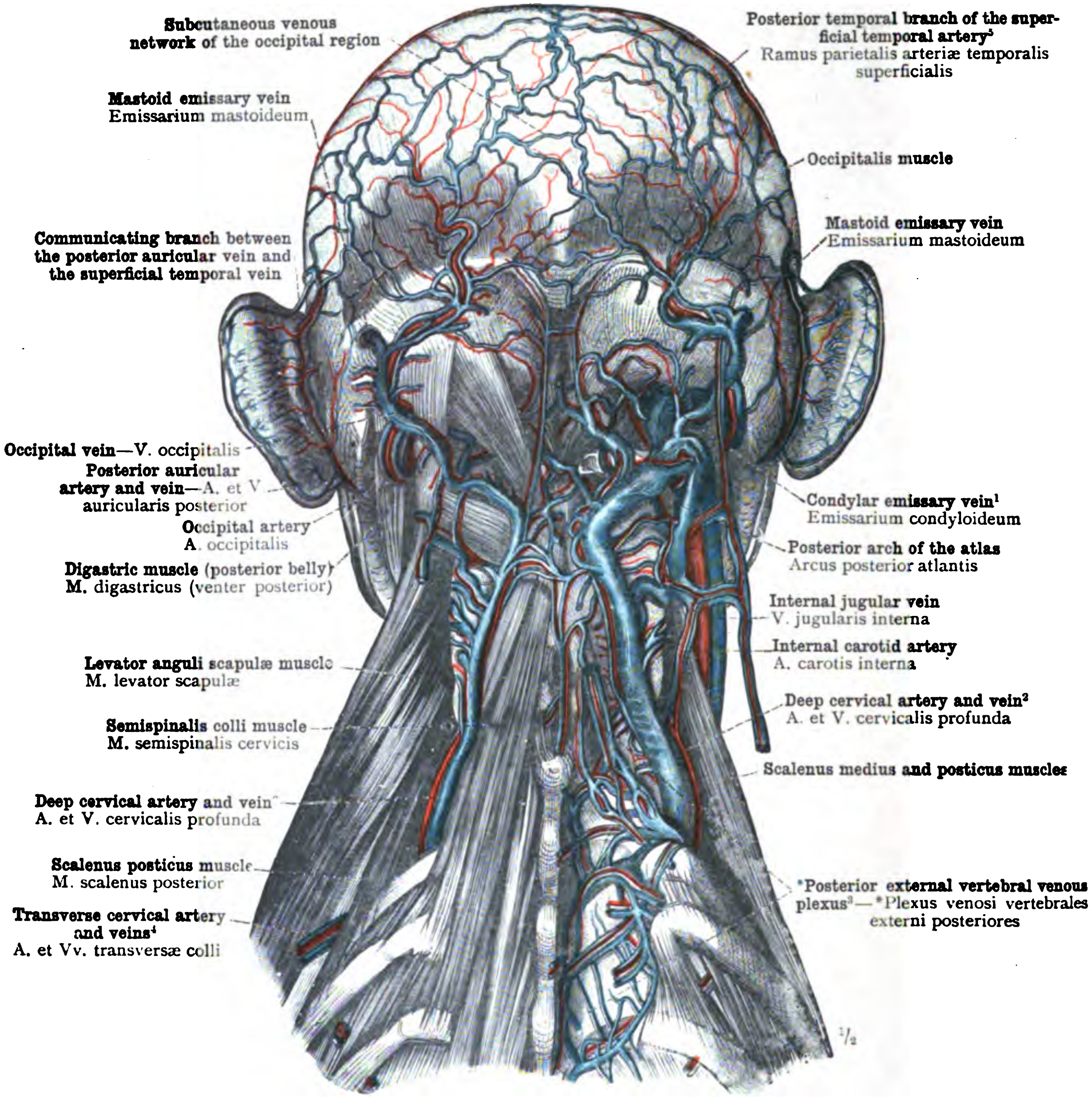
Subcutaneous venous network of the occipital region
Mastoid emissary vein
Emissarium mastoideum
Communicating branch between **the posterior auricular** vein and **the superficial temporal** vein
Occipital vein—V. occipitalis
Posterior auricular artery and vein—A. et V. auricularis posterior
Occipital artery
A. occipitalis
Digastric muscle (posterior belly)
M. digastricus (venter posterior)
Levator anguli scapulæ muscle
M. levator scapulæ
Semispinalis colli muscle
M. semispinalis cervicis
Deep cervical artery and vein
A. et V. cervicalis profunda
Scalenus posticus muscle
M. scalenus posterior
Transverse cervical artery and veins[4]
A. et Vv. transversæ colli
Posterior temporal **branch of the superficial temporal artery**[5]
Ramus parietalis arteriæ temporalis superficialis
Occipitalis **muscle**
Mastoid emissary vein
Emissarium mastoideum
Condylar **emissary vein**[1]
Emissarium condyloideum
Posterior arch **of the atlas**
Arcus posterior atlantis
Internal jugular **vein**
V. jugularis interna
Internal carotid **artery**
A. carotis interna
Deep cervical **artery and vein**[2]
A. et V. cervicalis profunda
Scalenus medius **and posticus muscles**
*Posterior **external vertebral venous** plexus[3]—*Plexus venosi vertebrales externi posteriores
1/2

FIG. 1063.—THE VEINS OF THE OCCIPITAL REGION AND THE DEEP VEINS OF THE BACK OF THE NECK, SEEN FROM BEHIND: THE SUBCUTANEOUS VENOUS NETWORK OF THE OCCIPITAL REGION; THE OCCIPITAL VEIN, VENA OCCIPITALIS, CONTINUOUS BELOW WITH THE DEEP CERVICAL VEIN, VENA CERVICALIS PROFUNDA; THE MASTOID EMISSARY VEIN, EMISSARIUM MASTOIDEUM, AND THE CONDYLAR EMISSARY VEIN, EMISSARIUM CONDYLOIDEUM (*see Appendix, note* 261); THE *POSTERIOR EXTERNAL VERTEBRAL VENOUS PLEXUS, *PLEXUS VENOSI VERTEBRALES POSTERIORES (*see Appendix, notes* 259 *and* 260); THE POSTERIOR AURICULAR VEIN, VENA AURICULARIS POSTERIOR.

On the left side the levator anguli scapulæ muscle was drawn outwards, and, after the removal of the complexus or semispinalis capitis muscle, the short posterior craniovertebral or suboccipital muscles and the semispinalis colli muscle were exposed. On the right side these muscles also were removed, and the *posterior external vertebral venous plexus was thus laid bare.

The Deep Veins of the Nuchal and Occipital Regions.

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[1] See Appendix, note 261.

[2] The *deep cervical vein* is known also as the *posterior vertebral vein.*

[3] See Appendix, notes 259 and 260.

[4] See Appendix, note 262.

[5] See Appendix note 168.

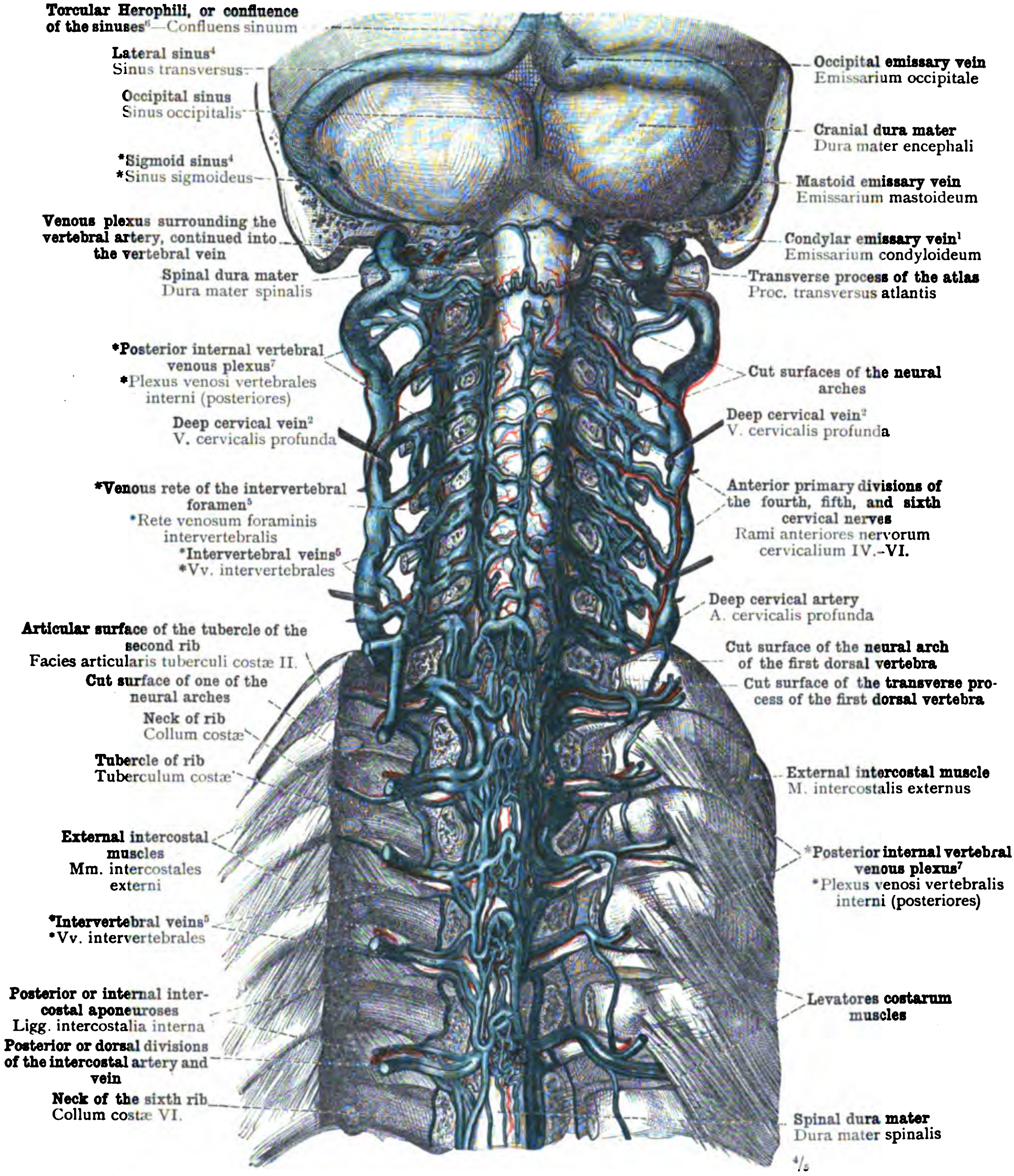
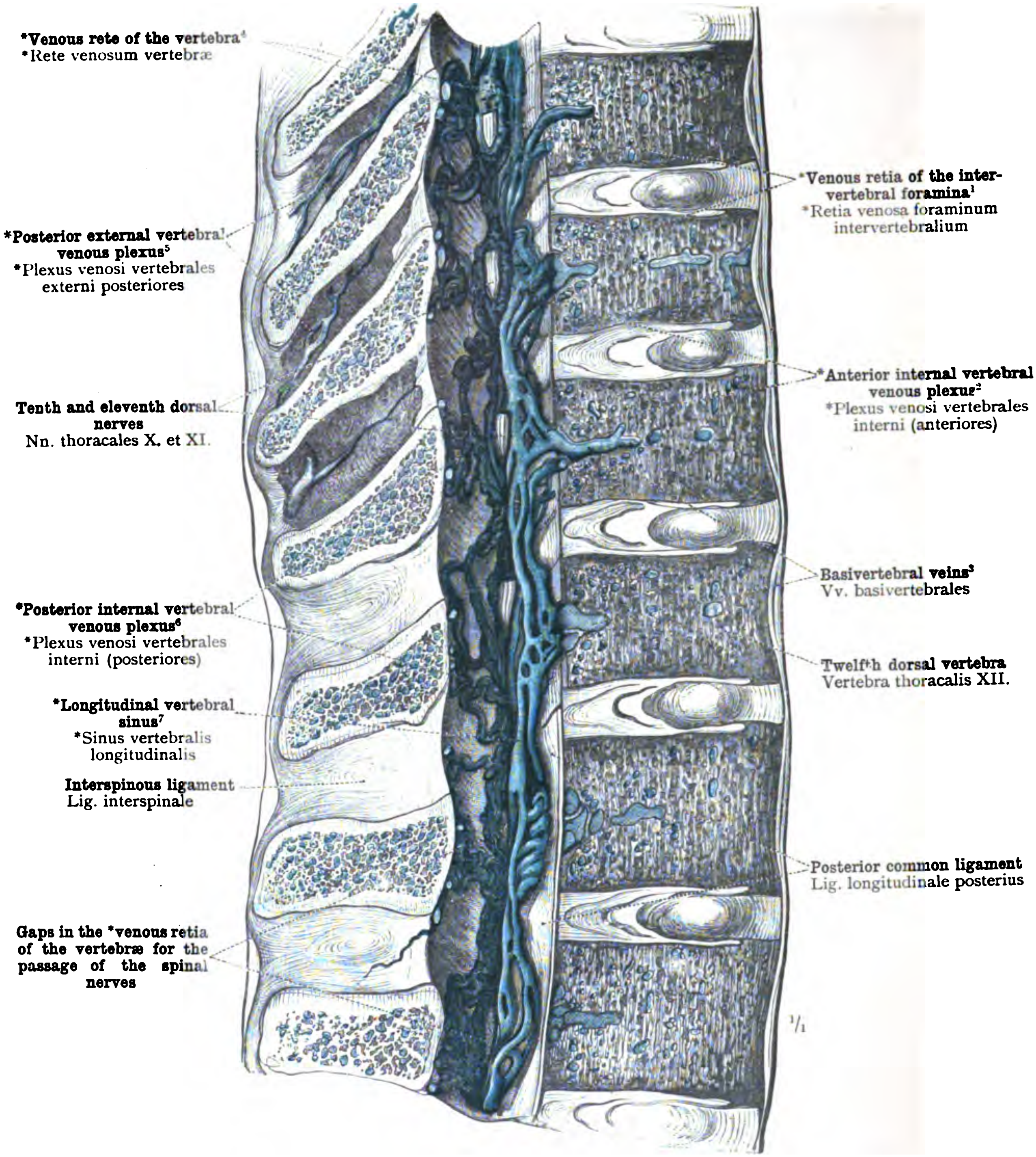

Torcular Herophili, or confluence of the sinuses[6]—Confluens sinuum
Lateral sinus[4]
Sinus transversus
Occipital sinus
Sinus occipitalis
*Sigmoid sinus[4]
*Sinus sigmoideus
Venous plexus surrounding the vertebral artery, continued into the vertebral vein
Spinal dura mater
Dura mater spinalis
*Posterior internal vertebral venous plexus[7]
*Plexus venosi vertebrales interni (posteriores)
Deep cervical vein[2]
V. cervicalis profunda
*Venous rete of the intervertebral foramen[5]
*Rete venosum foraminis intervertebralis
*Intervertebral veins[5]
*Vv. intervertebrales
Articular surface of the tubercle of the second rib
Facies articularis tuberculi costæ II.
Cut surface of one of the neural arches
Neck of rib
Collum costæ
Tubercle of rib
Tuberculum costæ
External intercostal muscles
Mm. intercostales externi
*Intervertebral veins[5]
*Vv. intervertebrales
Posterior or internal intercostal aponeuroses
Ligg. intercostalia interna
Posterior or dorsal divisions of the intercostal artery and vein
Neck of the sixth rib
Collum costæ VI.
Occipital emissary vein
Emissarium occipitale
Cranial dura mater
Dura mater encephali
Mastoid emissary vein
Emissarium mastoideum
Condylar emissary vein[1]
Emissarium condyloideum
Transverse process of the atlas
Proc. transversus atlantis
Cut surfaces of the neural arches
Deep cervical vein[2]
V. cervicalis profunda
Anterior primary divisions of the fourth, fifth, and sixth cervical nerves
Rami anteriores nervorum cervicalium IV.-VI.
Deep cervical artery
A. cervicalis profunda
Cut surface of the neural arch of the first dorsal vertebra
Cut surface of the transverse process of the first dorsal vertebra
External intercostal muscle
M. intercostalis externus
*Posterior internal vertebral venous plexus[7]
*Plexus venosi vertebralis interni (posteriores)
Levatores costarum muscles
Spinal dura mater
Dura mater spinalis
4/5

FIG. 1064.—*INTERNAL VERTEBRAL VENOUS PLEXUS (*see Appendix, notes* 259 *and* 263), LAID BARE FROM BEHIND BY OPENING THE SPINAL CANAL IN THE CERVICAL AND THE UPPER DORSAL PORTIONS OF THE VERTEBRAL COLUMN; THE CONNEXIONS OF THE PLEXUS WITH THE DEEP CERVICAL VEIN (*see note* 2 *above*) AND WITH THE INTERCOSTAL VEINS. THE VENOUS SINUSES OF THE CRANIUM (MENINGEAL SINUSES), SINUS DURÆ MATRIS.

[1] See Appendix, note 261.
[2] Known also as the *posterior vertebral vein.*
[3] See Appendix, note 263.
[4] See Appendix, note 264.
[5] See Appendix, note 265.
[6] See Appendix, note 266.
[7] See Appendix, notes 259 and 263.

Plexus venosi vertebrales interni—The *internal vertebral venous plexus.—V. cervicalis profunda—The deep cervical vein.

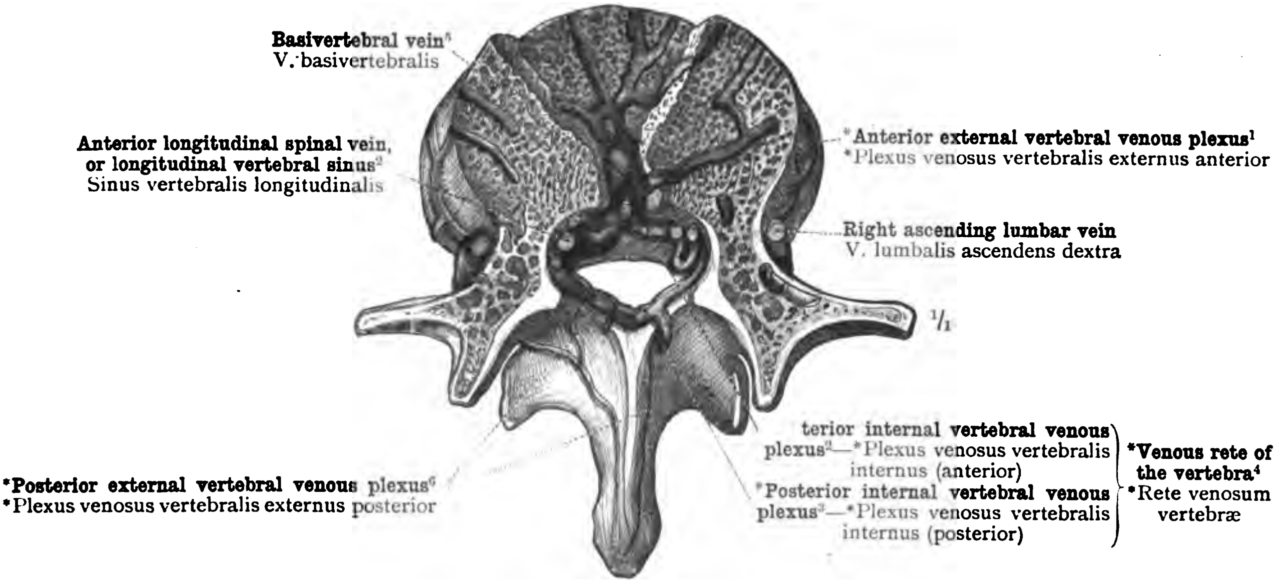

*Venous rete of the vertebra[4]
*Rete venosum vertebræ
*Posterior external vertebral venous plexus[5]
*Plexus venosi vertebrales externi posteriores
Tenth and eleventh dorsal nerves
Nn. thoracales X. et XI.
*Posterior internal vertebral venous plexus[6]
*Plexus venosi vertebrales interni (posteriores)
*Longitudinal vertebral sinus[7]
*Sinus vertebralis longitudinalis
Interspinous ligament
Lig. interspinale
Gaps in the *venous retia of the vertebræ for the passage of the spinal nerves
*Venous retia of the intervertebral foramina[1]
*Retia venosa foraminum intervertebralium
*Anterior internal vertebral venous plexus[2]
*Plexus venosi vertebrales interni (anteriores)
Basivertebral veins[3]
Vv. basivertebrales
Twelfth dorsal vertebra
Vertebra thoracalis XII.
Posterior common ligament
Lig. longitudinale posterius
1/1

[1] See Appendix, note 265.
[2] See Appendix, notes 259 and 267.
[3] See Appendix, note 268.
[4] See Appendix, note 266.
[5] See Appendix, notes 259 and 266.
[6] See Appendix, notes 259 and 263.
[7] Or *anterior longitudinal spinal vein.* See Appendix, notes 260 and 267.

FIG. 1065.—THE *INTERNAL VERTEBRAL VENOUS PLEXUSES, *PLEXUS VENOSI VERTEBRALES INTERNI (*see Appendix, notes* 259 *and* 263), DISPLAYED IN THE LEFT HALF OF A MEDIAN SAGITTAL SECTION THROUGH THE FOUR LOWERMOST DORSAL AND THE TWO UPPERMOST LUMBAR VERTEBRÆ; THEIR CONNEXION WITH THE BASIVERTEBRAL VEINS, VENÆ BASIVERTEBRALES (*see Appendix, note* 268), AND THEIR RELATION TO THE EMERGING ROOTS OF THE SPINAL NERVES.

The posterior common ligament was removed from the dorsal vertebræ, but left intact on the lumbar vertebræ. Between the spinous processes of the eighth, ninth, and tenth dorsal vertebræ, by the removal of the interspinous ligaments, portions of the *posterior external vertebral venous plexus have also been exposed.

Plexus venosi vertebrales interni—The internal vertebral venous plexus.


Basivertebral vein[5]
V. basivertebralis
Anterior longitudinal spinal vein, or longitudinal vertebral sinus[2]
Sinus vertebralis longitudinalis
*Anterior external vertebral venous plexus[1]
*Plexus venosus vertebralis externus anterior
Right ascending lumbar vein
V. lumbalis ascendens dextra
1/1
terior internal vertebral venous plexus[2]—*Plexus venosus vertebralis internus (anterior)
*Posterior internal vertebral venous plexus[3]—*Plexus venosus vertebralis internus (posterior)
*Venous rete of the vertebra[4]
*Rete venosum vertebræ
*Posterior external vertebral venous plexus[6]
*Plexus venosus vertebralis externus posterior

---

[1] **Anterior External Vertebral Venous Plexus.*—Quain calls the veins that combine to form this plexus the *external veins of the bodies of the vertebræ.* According to Von Langer and Toldt, the *plexus venosi vertebrales externi anteriores* are not equally developed throughout the spine, being found only in the cervical and sacral regions. (See also Appendix, note 259.)—Tr.

[2] See Appendix, notes 259 and 267.

[3] See Appendix, notes 259 and 261.

[4] See Appendix, note 269.

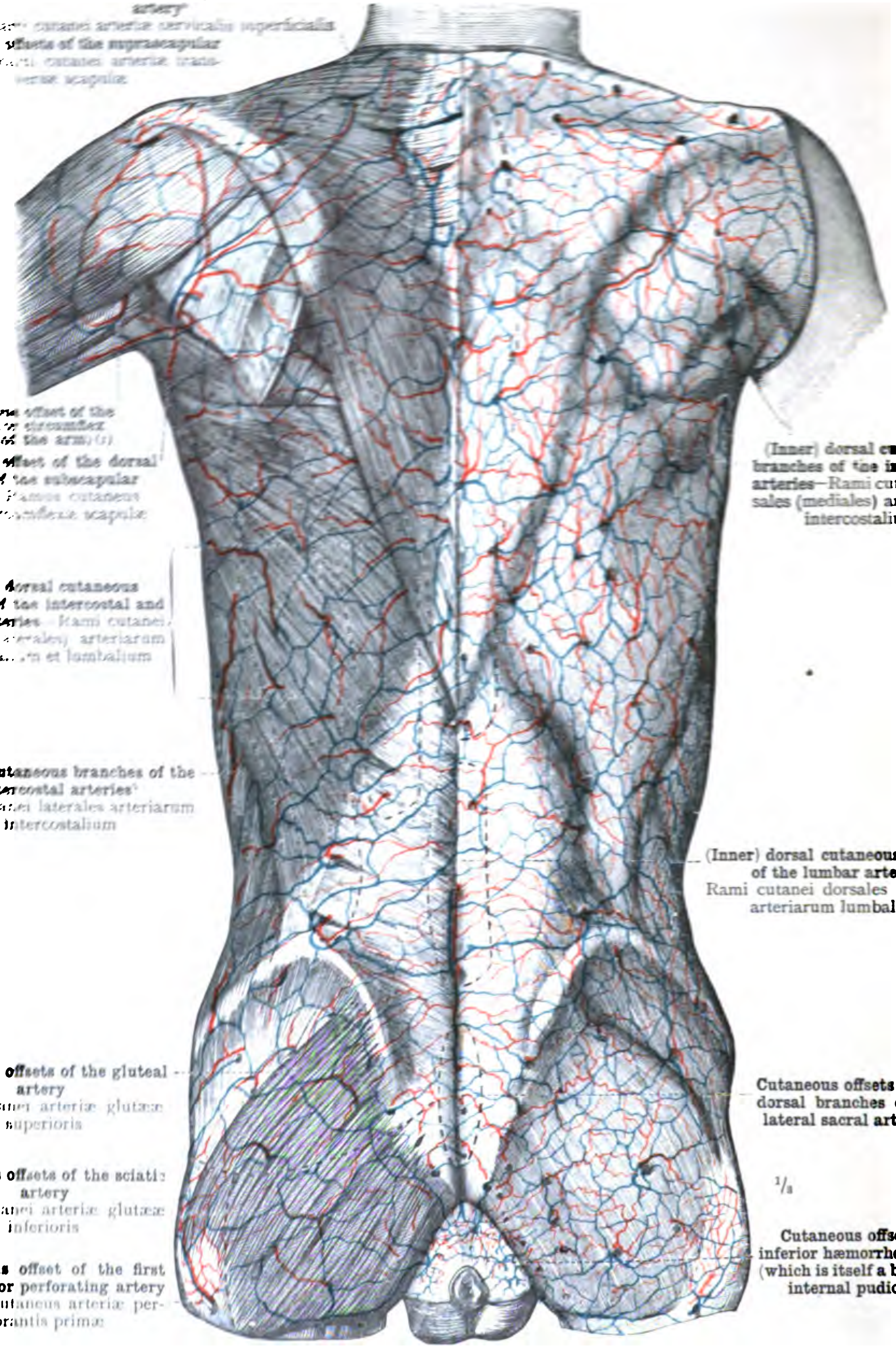
[5] See Appendix, note 268.

[6] See Appendix, notes 259 and 260.

FIG. 1066.—THE BASIVERTEBRAL VEINS, VENÆ BASIVERTEBRALES, THEIR CONNEXION WITH THE *ANTERIOR INTERNAL AND THE *ANTERIOR EXTERNAL VERTEBRAL VENOUS PLEXUSES, *PLEXUS VENOSI VERTEBRALES ANTERIORES; AND THE *VENOUS RETE OF THE VERTEBRA, RETE VENOSUM VERTEBRÆ, A SEGMENTAL PORTION OF THE *ANTERIOR INTERNAL AND *POSTERIOR INTERNAL VERTEBRAL VENOUS PLEXUS, *PLEXUS VENOSI VERTEBRALES INTERNI; SEEN FROM ABOVE IN A HORIZONTAL SECTION THROUGH A LUMBAR VERTEBRA.

In order to bring into view the ramifications of the basivertebral veins at different levels, a part of the substance of the body of the vertebra was cut away below the general level of the section.

Vv. basivertebrales—The basivertebral veins.—Plexus venosi vertebrales—The vertebral venous plexuses.

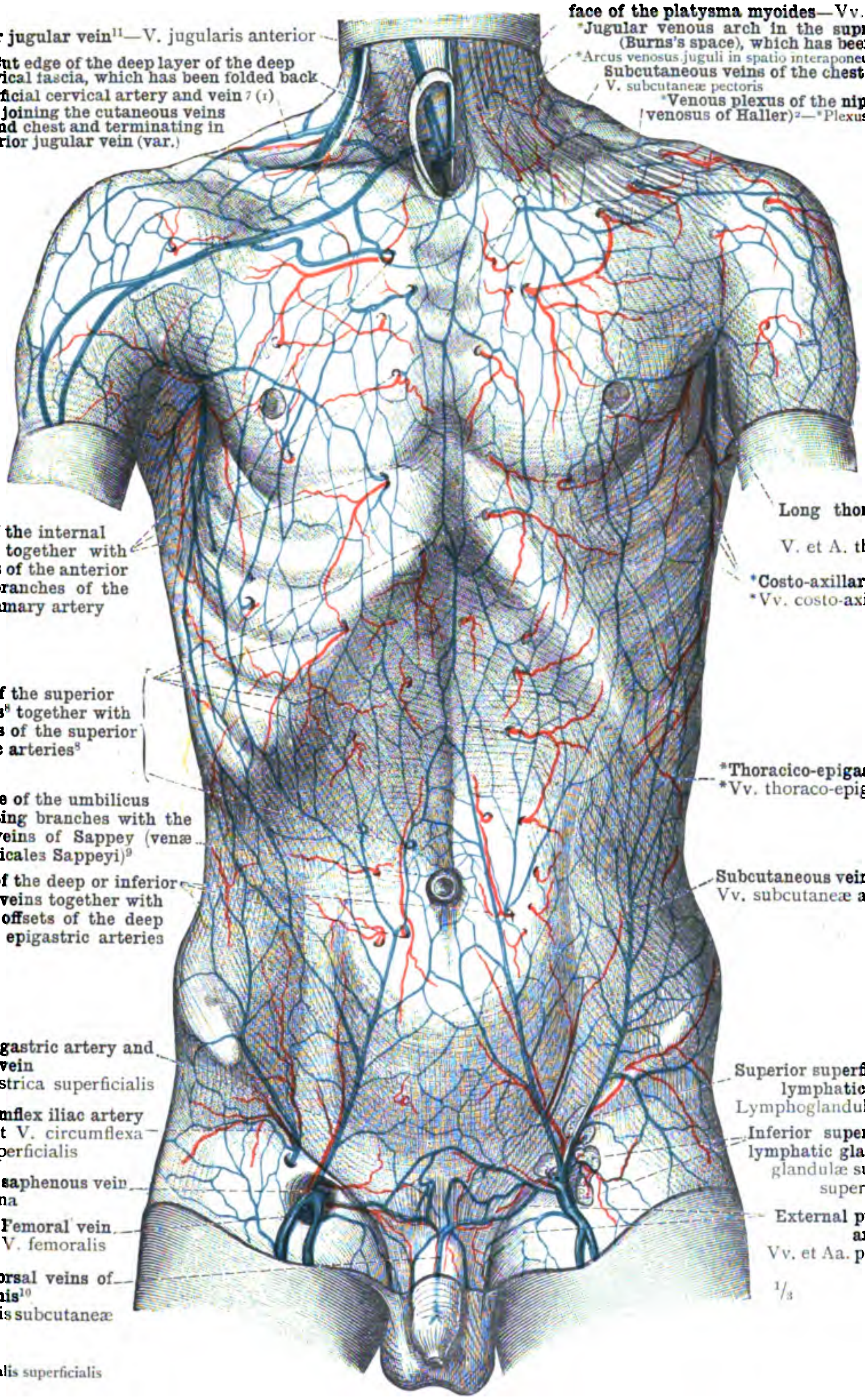

Cutaneous offsets of the superficial cervical artery[3]
Rami cutanei arteriæ cervicalis superficialis
Cutaneous offsets of the suprascapular artery[4]—Rami cutanei arteriæ transversæ scapulæ
Cutaneous offset of the posterior circumflex artery of the arm (1)
Cutaneous offset of the dorsal branch of the subscapular artery[6]—Ramus cutaneus arteriæ circumflexæ scapulæ
(Outer) dorsal cutaneous branches of the intercostal and lumbar arteries—Rami cutanei dorsales (laterales) arteriarum intercostalium et lumbalium
Lateral cutaneous branches of the intercostal arteries[5]
Rami cutanei laterales arteriarum intercostalium
Cutaneous offsets of the gluteal artery
Rami cutanei arteriæ glutææ superioris
Cutaneous offsets of the sciatic artery
Rami cutanei arteriæ glutææ inferioris
Cutaneous offset of the first or superior perforating artery
Ramus cutaneus arteriæ perforantis primæ
(Inner) dorsal cutaneous branches of the intercostal arteries—Rami cutanei dorsales (mediales) arteriarum intercostalium
(Inner) dorsal cutaneous branches of the lumbar arteries
Rami cutanei dorsales (mediales) arteriarum lumbalium
Cutaneous offsets of the dorsal branches of the lateral sacral arteries
1/3
Cutaneous offsets of the inferior hæmorrhoidal artery[1] (which is itself a branch of the internal pudic artery)[2]

(1) Rami cutanei arteriæ circumflexæ humeri posterioris

[1] Called by Macalister the *anal artery*.
[2] See Appendix, note 139.
[3] Regarding the author's use of the term *arteria cervicalis superficialis*, see Appendix, notes 131, 135, 172, and 208.
[4] Called also the *transverse scapular* or *transverse humeral artery*.
[5] Known also as the *lateral perforating branches*. See note 1 to p. 589.
[6] Or *dorsalis scapulæ artery*.

FIG. 1067.—THE SUBCUTANEOUS ARTERIES AND VEINS OF THE POSTERIOR WALL OF THE TRUNK.

The Subcutaneous Bloodvessels of the Posterior Wall of the Trunk.


Anterior jugular vein[11]—V. jugularis anterior
Cut edge of the deep layer of the deep cervical fascia, which has been folded back
Superficial cervical artery and vein[7] (1)
Cephalic vein joining the cutaneous veins of the neck and chest and terminating in the anterior jugular vein (var.)
Subcutaneous veins of the neck on the outer surface of the platysma myoides—Vv. subcutaneæ colli
*Jugular venous arch in the suprasternal space (Burns's space), which has been opened[1]
*Arcus venosus juguli in spatio interaponeurotico suprasternale
Subcutaneous veins of the chest
V. subcutaneæ pectoris
*Venous plexus of the nipple (circulus venosus of Haller)[2]—*Plexus venosus mamillæ
Long thoracic artery and vein[3]
V. et A. thoracalis lateralis
Tributaries of the internal mammary vein together with cutaneous offsets of the anterior or perforating branches of the internal mammary artery
*Costo-axillary veins[4]
*Vv. costo-axillares
Tributaries of the superior epigastric veins[8] together with cutaneous offsets of the superior epigastric arteries[8]
*Thoracico-epigastric veins[4]
*Vv. thoraco-epigastricæ
*Venous circle of the umbilicus and communicating branches with the para-umbilical veins of Sappey (venæ parumbilicales Sappeyi)[9]
Subcutaneous veins of the abdomen
Vv. subcutaneæ abdominis
Tributaries of the deep or inferior epigastric veins together with cutaneous offsets of the deep or inferior epigastric arteries
Superficial epigastric artery and vein
A. et V. epigastrica superficialis
Superior superficial inguinal lymphatic glands
Lymphoglandulæ inguinales
Superficial circumflex iliac artery and vein—A. et V. circumflexa ilium superficialis
Inferior superficial inguinal lymphatic glands[5]—Lymphoglandulæ subinguinales superficiales
Internal or long saphenous vein
V. saphena magna
External pudic veins and arteries[6]
Vv. et Aa. pudendæ externæ
Femoral vein
V. femoralis
Subcutaneous dorsal veins of the penis[10]
Vv. dorsales penis subcutaneæ
1/3

(1) A. et V. cervicalis superficialis

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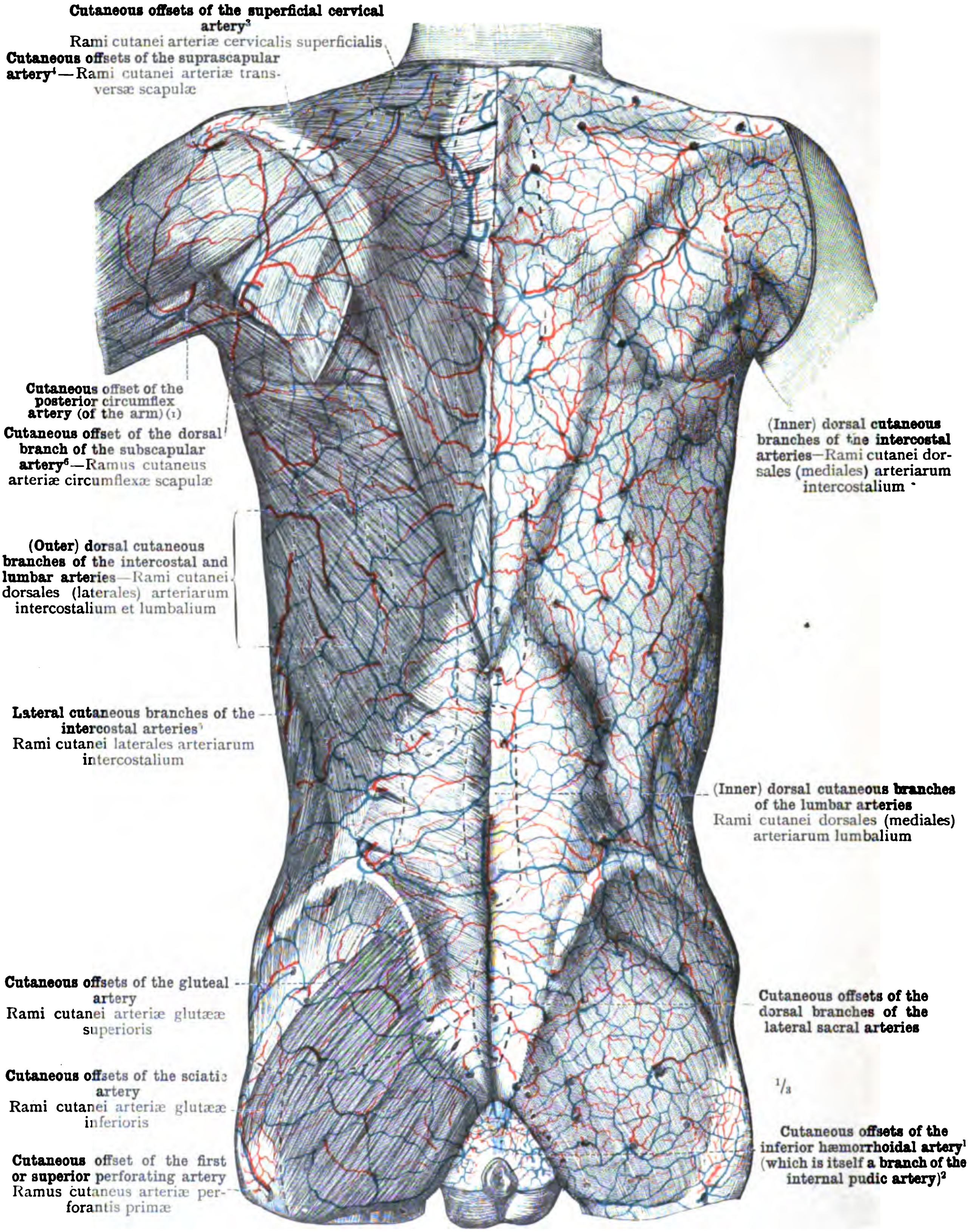
[1] See Appendix, note 123.
[2] See Appendix, note 270.
[3] Known also as the *external mammary artery* and *vein*.
[4] See Appendix, note 271.
[5] Often called the *femoral lymphatic glands*.
[6] See Appendix, note 272.
[7] See Appendix, notes 134, 135, 172, and 206.
[8] The *superior epigastric* vessels are known also as the *abdominal* branches of the *internal mammary* vessels.
[9] See Appendix, note 273.
[10] See Appendix, note 274.
[11] See Appendix, note 197.

FIG. 1068.—THE SUBCUTANEOUS ARTERIES AND VEINS OF THE ANTERIOR WALL OF THE TRUNK.

The Subcutaneous Bloodvessels of the Anterior Wall of the Trunk.


Cutaneous offsets of the superficial cervical artery[3]
Rami cutanei arteriæ cervicalis superficialis
Cutaneous offsets of the suprascapular artery[4]—Rami cutanei arteriæ transversæ scapulæ
Cutaneous offset of the posterior circumflex artery (of the arm) (1)
Cutaneous offset of the dorsal branch of the subscapular artery[6]—Ramus cutaneus arteriæ circumflexæ scapulæ
(Outer) dorsal cutaneous branches of the intercostal and lumbar arteries—Rami cutanei dorsales (laterales) arteriarum intercostalium et lumbalium
Lateral cutaneous branches of the intercostal arteries[5]
Rami cutanei laterales arteriarum intercostalium
Cutaneous offsets of the gluteal artery
Rami cutanei arteriæ glutææ superioris
Cutaneous offsets of the sciatic artery
Rami cutanei arteriæ glutææ inferioris
Cutaneous offset of the first or superior perforating artery
Ramus cutaneus arteriæ perforantis primæ
(Inner) dorsal cutaneous branches of the intercostal arteries—Rami cutanei dorsales (mediales) arteriarum intercostalium
(Inner) dorsal cutaneous branches of the lumbar arteries
Rami cutanei dorsales (mediales) arteriarum lumbalium
Cutaneous offsets of the dorsal branches of the lateral sacral arteries
1/3
Cutaneous offsets of the inferior hæmorrhoidal artery[1] **(which is itself a branch of the internal pudic artery)**[2]

(1) Rami cutanei arteriæ circumflexæ humeri posterioris

[1] Called by Macalister the *anal artery*.

[2] See Appendix, note 139.

[3] Regarding the author's use of the term *arteria cervicalis superficialis*, see Appendix, notes 131, 135, 172, and 208.

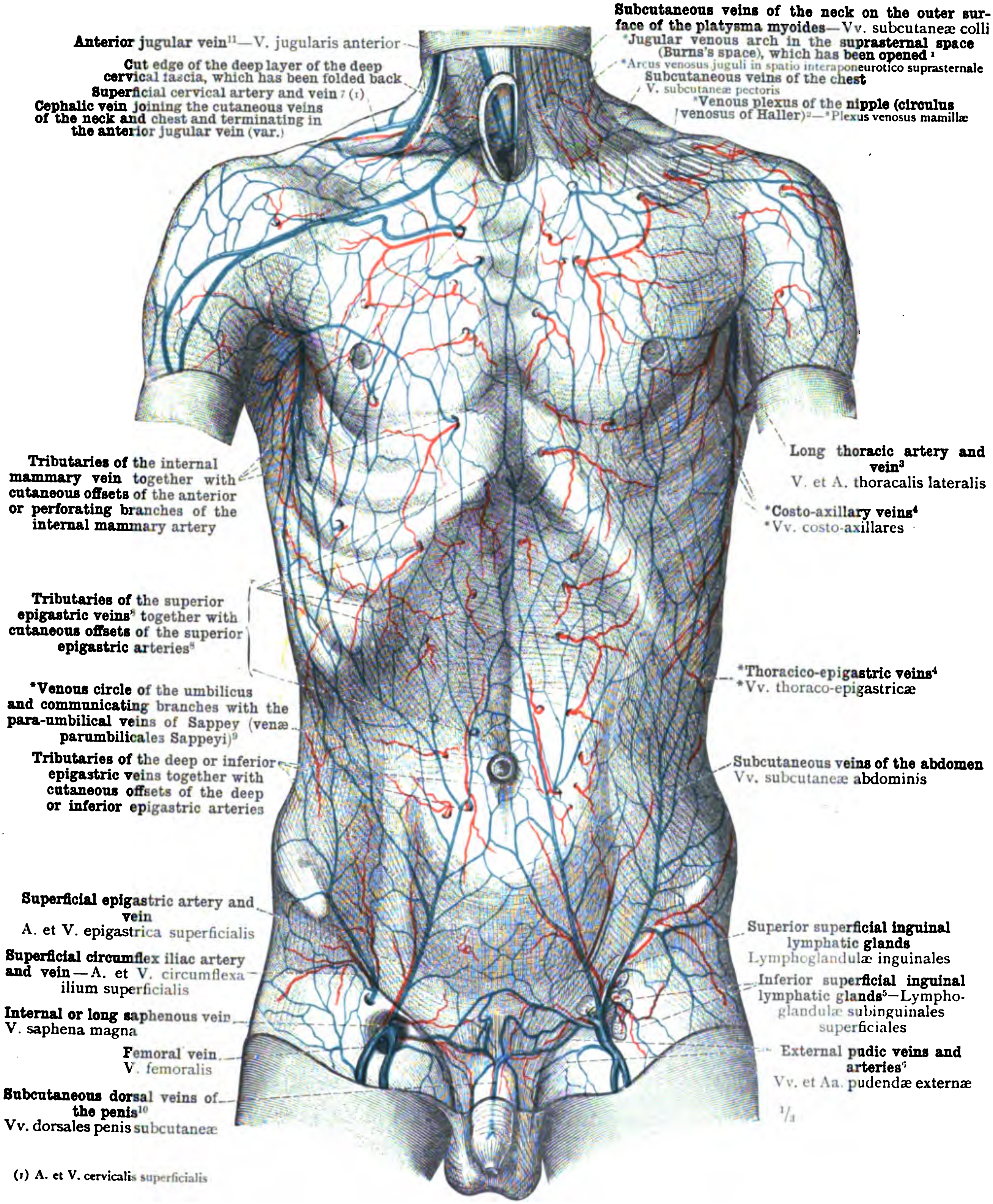
[4] Called also the *transverse scapular* or *transverse humeral artery*.

[5] Known also as the *lateral perforating branches*. See note 1 to p. 589.

[6] Or *dorsalis scapulæ artery*.

FIG. 1067.—THE SUBCUTANEOUS ARTERIES AND VEINS OF THE POSTERIOR WALL OF THE TRUNK.

The Subcutaneous Bloodvessels of the Posterior Wall of the Trunk.

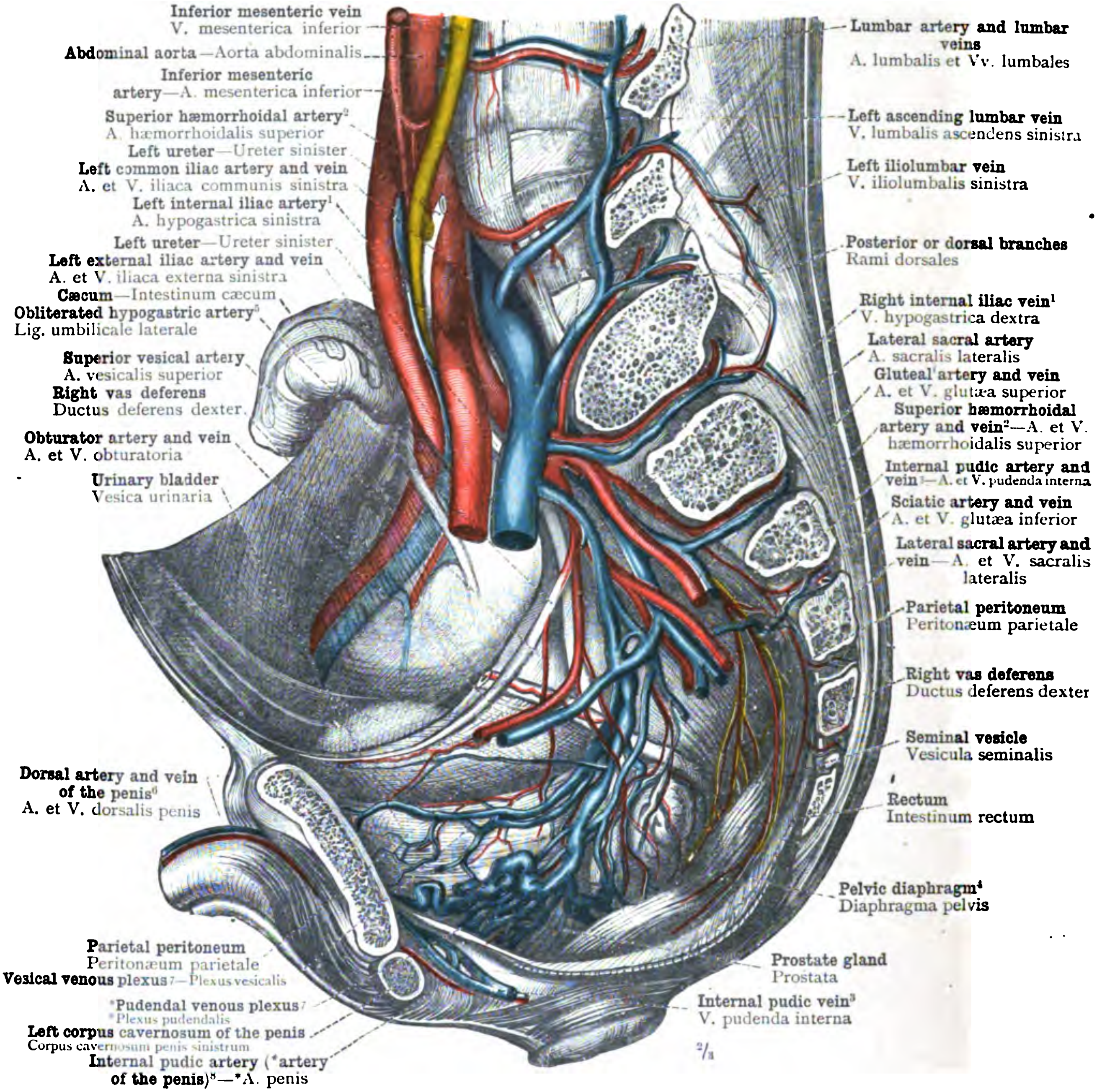

Anterior jugular vein[11]—V. jugularis anterior
Cut edge of the deep layer of the deep cervical fascia, which has been folded back
Superficial cervical artery and vein[7] (1)
Cephalic vein joining the cutaneous veins of the neck and chest and terminating in the anterior jugular vein (var.)
Subcutaneous veins of the neck on the outer surface of the platysma myoides—Vv. subcutaneæ colli
*Jugular venous arch in the suprasternal space (Burns's space), which has been opened[1]
*Arcus venosus juguli in spatio interaponeurotico suprasternale
Subcutaneous veins of the chest
V. subcutaneæ pectoris
*Venous plexus of the nipple (circulus venosus of Haller)[2]—*Plexus venosus mamillæ
Tributaries of the internal mammary vein together with cutaneous offsets of the anterior or perforating branches of the internal mammary artery
Long thoracic artery and vein[3]
V. et A. thoracalis lateralis
*Costo-axillary veins[4]
*Vv. costo-axillares
Tributaries of the superior epigastric veins[8] together with cutaneous offsets of the superior epigastric arteries[8]
*Venous circle of the umbilicus and communicating branches with the para-umbilical veins of Sappey (venæ parumbilicales Sappeyi)[9]
*Thoracico-epigastric veins[4]
*Vv. thoraco-epigastricæ
Tributaries of the deep or inferior epigastric veins together with cutaneous offsets of the deep or inferior epigastric arteries
Subcutaneous veins of the abdomen
Vv. subcutaneæ abdominis
Superficial epigastric artery and vein
A. et V. epigastrica superficialis
Superficial circumflex iliac artery and vein—A. et V. circumflexa ilium superficialis
Internal or long saphenous vein
V. saphena magna
Femoral vein
V. femoralis
Subcutaneous dorsal veins of the penis[10]
Vv. dorsales penis subcutaneæ
Superior superficial inguinal lymphatic glands
Lymphoglandulæ inguinales
Inferior superficial inguinal lymphatic glands[5]—Lymphoglandulæ subinguinales superficiales
External pudic veins and arteries[6]
Vv. et Aa. pudendæ externæ
1/1
(1) A. et V. cervicalis superficialis

---

[1] See Appendix, note 123.
[2] See Appendix, note 270.
[3] Known also as the *external mammary artery* and *vein*.
[4] See Appendix, note 271.
[5] Often called the *femoral lymphatic glands*.
[6] See Appendix, note 272.
[7] See Appendix, notes 134, 135, 172, and [illegible].
[8] The *superior epigastric* vessels are known also as the *abdominal* branches of the *internal mammary* vessels.
[9] See Appendix, note 273.
[10] See Appendix, note 274.
[11] See Appendix, note 197.

FIG. 1068.—THE SUBCUTANEOUS ARTERIES AND VEINS OF THE ANTERIOR WALL OF THE TRUNK.

The Subcutaneous Bloodvessels of the Anterior Wall of the Trunk.


Inferior mesenteric vein
V. mesenterica inferior
Abdominal aorta—Aorta abdominalis
Inferior mesenteric artery—A. mesenterica inferior
Superior hæmorrhoidal artery[2]
A. hæmorrhoidalis superior
Left ureter—Ureter sinister
Left common iliac artery and vein
A. et V. iliaca communis sinistra
Left internal iliac artery[1]
A. hypogastrica sinistra
Left ureter—Ureter sinister
Left external iliac artery and vein
A. et V. iliaca externa sinistra
Cæcum—Intestinum cæcum
Obliterated hypogastric artery[5]
Lig. umbilicale laterale
Superior vesical artery
A. vesicalis superior
Right vas deferens
Ductus deferens dexter
Obturator artery and vein
A. et V. obturatoria
Urinary bladder
Vesica urinaria
Dorsal artery and vein of the penis[6]
A. et V. dorsalis penis
Parietal peritoneum
Peritonæum parietale
Vesical venous plexus[7]—Plexus vesicalis
*Pudendal venous plexus
*Plexus pudendalis
Left corpus cavernosum of the penis
Corpus cavernosum penis sinistrum
Internal pudic artery (*artery of the penis)[8]—*A. penis
Lumbar artery and lumbar veins
A. lumbalis et Vv. lumbales
Left ascending lumbar vein
V. lumbalis ascendens sinistra
Left iliolumbar vein
V. iliolumbalis sinistra
Posterior or dorsal branches
Rami dorsales
Right internal iliac vein[1]
V. hypogastrica dextra
Lateral sacral artery
A. sacralis lateralis
Gluteal artery and vein
A. et V. glutæa superior
Superior hæmorrhoidal artery and vein[2]—A. et V. hæmorrhoidalis superior
Internal pudic artery and vein[3]—A. et V. pudenda interna
Sciatic artery and vein
A. et V. glutæa inferior
Lateral sacral artery and vein—A. et V. sacralis lateralis
Parietal peritoneum
Peritonæum parietale
Right vas deferens
Ductus deferens dexter
Seminal vesicle
Vesicula seminalis
Rectum
Intestinum rectum
Pelvic diaphragm[4]
Diaphragma pelvis
Prostate gland
Prostata
Internal pudic vein[3]
V. pudenda interna
2/3

[1] See Appendix, note 129. [2] Called by Macalister the *superior rectal artery* and *vein*.

[3] Regarding the nomenclature of the *internal pudic artery*, see Appendix, note 139. The same considerations apply to the nomenclature of the companion *vein*.—Tr.

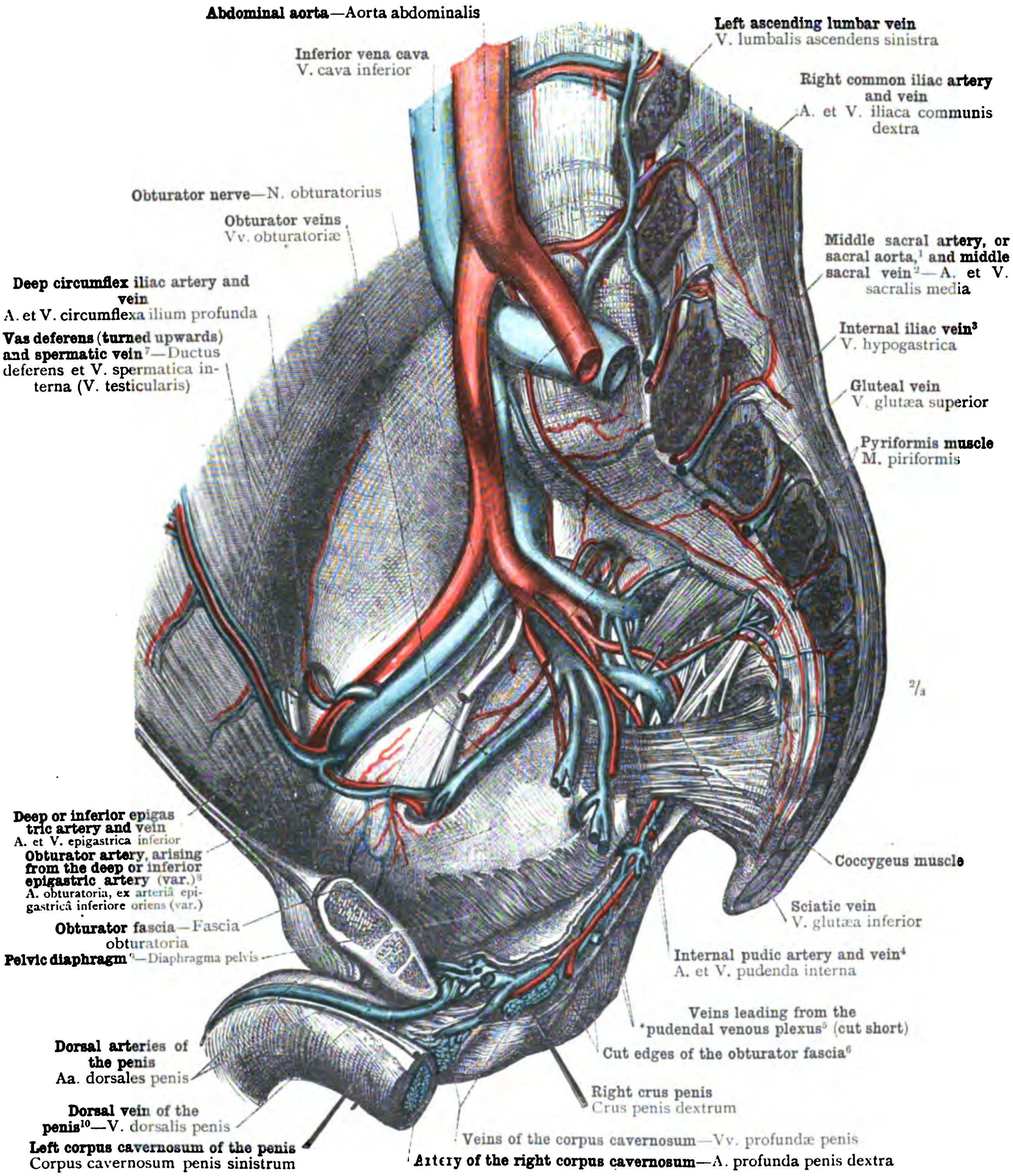
[4] See Appendix, note 140. [5] Or **external umbilical ligament*. See Appendix, note 148.

[6] See Appendix, note 274. [7] See Appendix, note 275. [8] See Appendix, note 142.

FIG. 1069.—THE VENOUS PLEXUSES OF THE MALE PELVIS; SEEN FROM THE LEFT SIDE.

By a section, which began in front a little to the left of the median plane, and behind passed through the left row of sacral foramina, the left lateral wall of the pelvis was removed, the parietal peritoneum covering this wall being, however, retained up to the level of its reflection on to the urinary bladder and the rectum. The extraperitoneal portions of these organs were exposed, together with the vessels by which they are surrounded; the pelvic diaphragm (*see Appendix, note* 140) was cut away close to the rectum and the bladder and drawn slightly downwards. The inferior mesenteric vein has been injected with a yellow material.

The Veins of the Male Pelvis.


Abdominal aorta—Aorta abdominalis
Inferior vena cava V. cava inferior
Left ascending lumbar vein V. lumbalis ascendens sinistra
Right common iliac artery and vein A. et V. iliaca communis dextra
Obturator nerve—N. obturatorius
Obturator veins Vv. obturatoriæ
Middle sacral artery, or sacral aorta,[1] and middle sacral vein[2]—A. et V. sacralis media
Deep circumflex iliac artery and vein A. et V. circumflexa ilium profunda
Vas deferens (turned upwards) and spermatic vein[7]—Ductus deferens et V. spermatica interna (V. testicularis)
Internal iliac vein[3] V. hypogastrica
Gluteal vein V. glutæa superior
Pyriformis muscle M. piriformis
2/3
Deep or inferior epigastric artery and vein A. et V. epigastrica inferior
Obturator artery, arising from the deep or inferior epigastric artery (var.)[8] A. obturatoria, ex arteriâ epigastricâ inferiore oriens (var.)
Coccygeus muscle
Sciatic vein V. glutæa inferior
Obturator fascia—Fascia obturatoria
Pelvic diaphragm[9]—Diaphragma pelvis
Internal pudic artery and vein[4] A. et V. pudenda interna
Veins leading from the "pudendal venous plexus[5] (cut short)
Cut edges of the obturator fascia[6]
Dorsal arteries of the penis Aa. dorsales penis
Right crus penis Crus penis dextrum
Dorsal vein of the penis[10]—V. dorsalis penis
Veins of the corpus cavernosum—Vv. profundæ penis
Left corpus cavernosum of the penis Corpus cavernosum penis sinistrum
Artery of the right corpus cavernosum—A. profunda penis dextra

[1] See Appendix, note 127.
[2] See Appendix, note 258.
[3] See Appendix, note 120.
[4] See note 3 to p. 672.
[5] See Appendix, note 275.
[6] See Appendix, note 276.
[7] See Appendix, note 277.
[8] See Appendix, note 278.
[9] See Appendix, note 140.
[10] See Appendix, note 274.

FIG 1070.—THE VEINS OF THE RIGHT LATERAL WALL OF THE PELVIS AND OF THE MALE EXTERNAL GENITAL ORGANS. SEEN FROM THE LEFT SIDE.

The Veins of the Male Pelvis.

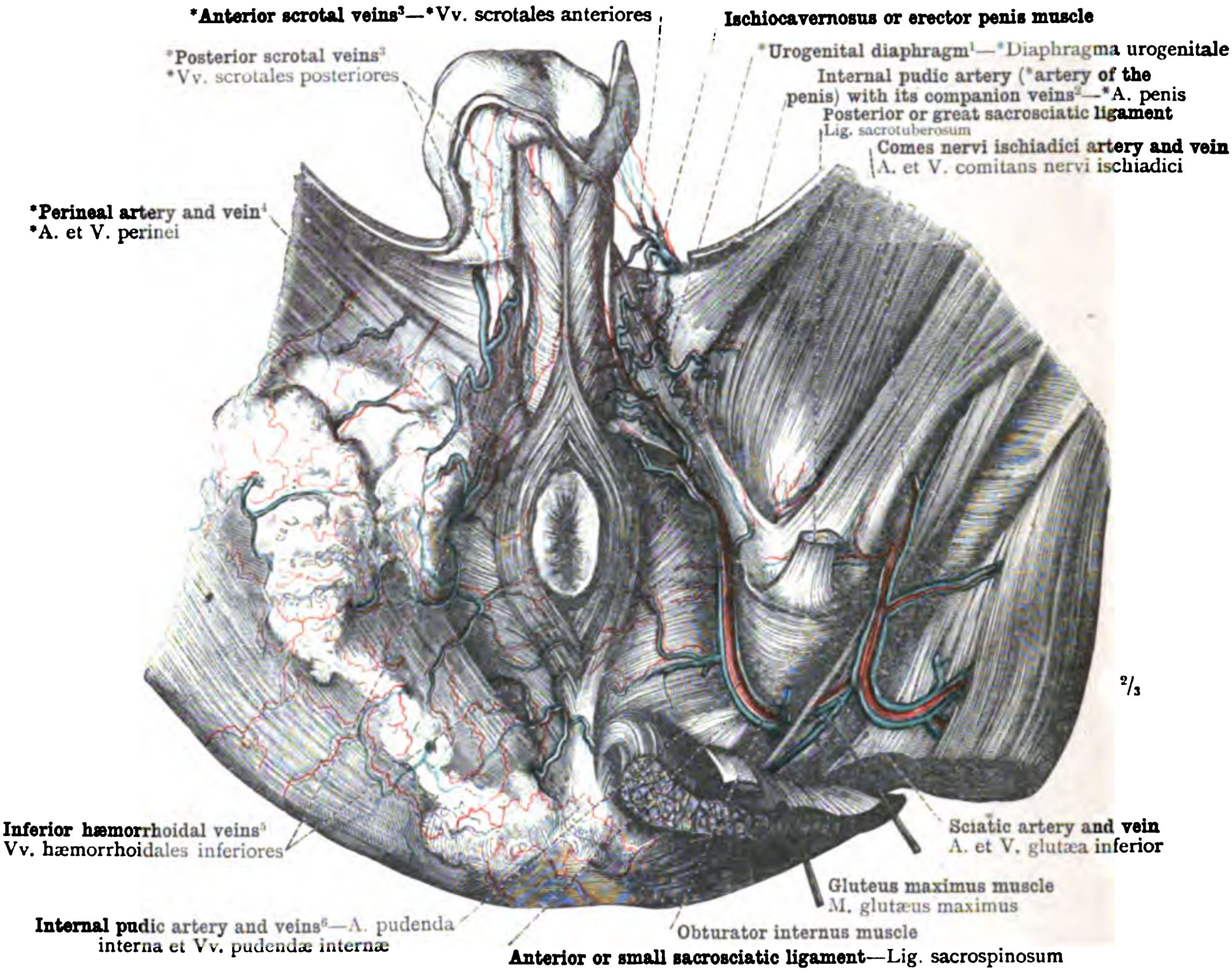

***Anterior scrotal veins**[3]—*Vv. scrotales anteriores
Ischiocavernosus or erector penis muscle
*Posterior scrotal veins[3]
*Vv. scrotales posteriores
*Urogenital diaphragm[1]—*Diaphragma urogenitale
Internal pudic artery (*artery of the penis) with its companion veins[2]—*A. penis
Posterior or great sacrosciatic ligament
Lig. sacrotuberosum
Comes nervi ischiadici artery and vein
A. et V. comitans nervi ischiadici
***Perineal artery and vein**[4]
*A. et V. perinei
2/3
Inferior hæmorrhoidal veins[5]
Vv. hæmorrhoidales inferiores
Sciatic artery and vein
A. et V. glutæa inferior
Gluteus maximus muscle
M. glutæus maximus
Internal pudic artery and veins[6]—A. pudenda interna et Vv. pudendæ internæ
Obturator internus muscle
Anterior or small sacrosciatic ligament—Lig. sacrospinosum

FIG. 1071.—THE SUPERFICIAL AND DEEP VEINS OF THE MALE PERINEAL REGION.

On the right side of the body the superficial bloodvessels were dissected out and the subcutaneous fat was partially preserved. On the left side of the body the gluteus maximus muscle and the posterior or great sacrosciatic ligament (ligamentum sacrotuberosum) were cut across and the segments were drawn apart, in order to display the passage of the internal pudic artery and veins through the small sacrosciatic foramen (foramen ischiadicum minus); these vessels were also exposed in the outer wall of the ischiorectal fossa. The left testis was removed, in order to lay bare the *anterior scrotal veins and their anastomoses with the *posterior scrotal veins.

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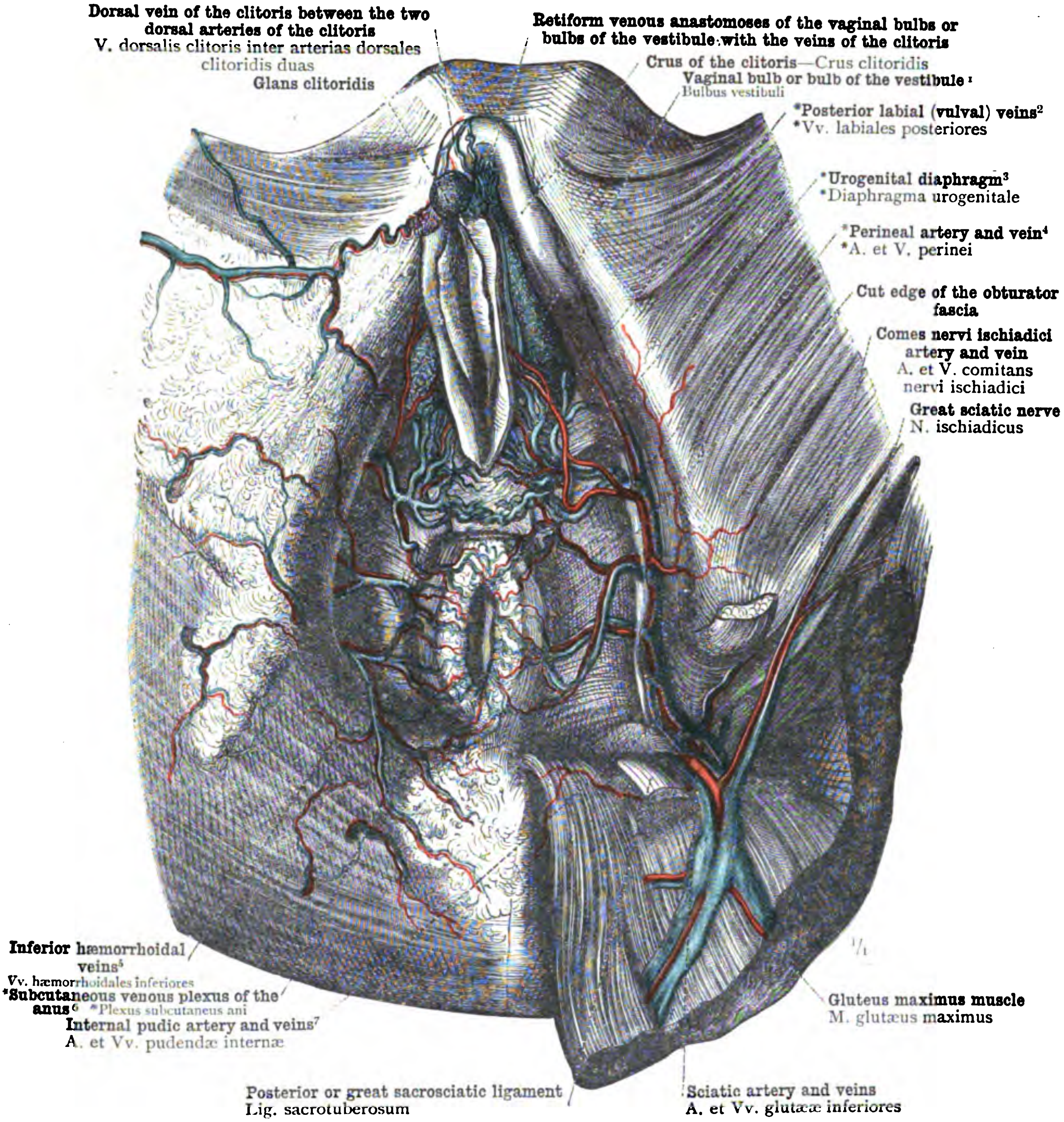
[1] See Appendix, note 142.
[2] See Appendix, note 141.
[3] See Appendix, note 138.
[4] Regarding the artery called by the author *arteria perinei, see Appendix, notes 147 and 149. The same considerations apply to the nomenclature of the companion vein.—TR.
[5] The same considerations apply regarding the nomenclature of these veins as regarding that of the artery they accompany. See Appendix, note 150.
[6] See Appendix, note 139.

The Veins of the Male Perineal Region.

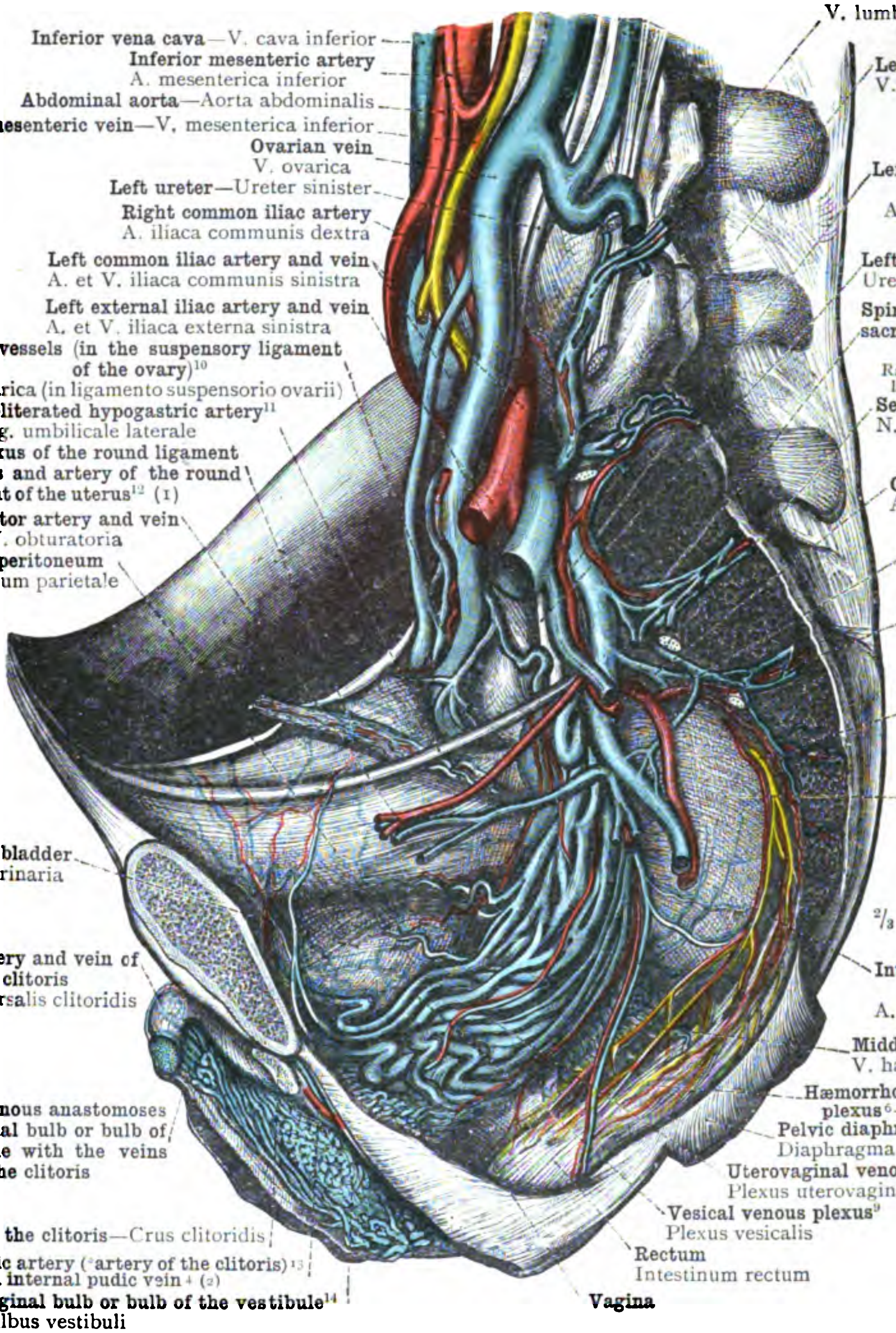

Dorsal vein of the clitoris between the two dorsal arteries of the clitoris
V. dorsalis clitoris inter arterias dorsales clitoridis duas
Glans clitoridis
Retiform venous anastomoses of the vaginal bulbs or bulbs of the vestibule with the veins of the clitoris
Crus of the clitoris—Crus clitoridis
Vaginal bulb or bulb of the vestibule[1]
Bulbus vestibuli
***Posterior labial (vulval) veins**[2]
*Vv. labiales posteriores
***Urogenital diaphragm**[3]
*Diaphragma urogenitale
***Perineal artery and vein**[4]
*A. et V. perinei
Cut edge of the obturator fascia
Comes nervi ischiadici artery and vein
A. et V. comitans nervi ischiadici
Great sciatic nerve
N. ischiadicus
1/1
Gluteus maximus muscle
M. glutæus maximus
Sciatic artery and veins
A. et Vv. glutææ inferiores
Posterior or great sacrosciatic ligament
Lig. sacrotuberosum
Internal pudic artery and veins[7]
A. et Vv. pudendæ internæ
***Subcutaneous venous plexus of the anus**[6] *Plexus subcutaneus ani
Inferior hæmorrhoidal veins[5]
Vv. hæmorrhoidales inferiores

[1] See Appendix to Part IV., note 91.
[2] See Appendix, note 138.
[3] See Appendix, note 142.
[4] See note 4 to p. 676.
[5] See note 5 to p. 674.
[6] See Appendix, note 279.
[7] See note 3 to p. 672.

FIG. 1072.—THE SUPERFICIAL AND DEEP VEINS OF THE FEMALE PERINEAL REGION. THE INFERIOR HÆMORRHOIDAL VEINS (*see note* 5 *to p.* 674), VENÆ HÆMORRHOIDALES INFERIORES; THE *SUBCUTANEOUS VENOUS PLEXUS OF THE ANUS (*see Appendix, note* 279), *PLEXUS SUBCUTANEUS ANI; THE INTERNAL PUDIC VEINS (*see note* 3 *to p.* 672), VENÆ PUDENDÆ INTERNÆ; THE *POSTERIOR LABIAL (OR VULVAL) VEINS (*see Appendix, note* 138), VENÆ LABIALES POSTERIORES: THE DORSAL VEINS OF THE CLITORIS, VENÆ DORSALES CLITORIDIS, AND THE VAGINAL BULB OR BULB OF THE VESTIBULE (*see note* 1 *above*), BULBUS VESTIBULI.

On the right side of the body, the superficial vessels were dissected out. On the left side of the body, the gluteus maximus muscle and the posterior or great sacrosciatic ligament were cut across and the segments were widely separated; by cutting through the obturator fascia where it covers the internal pudic vessels in the outer wall of the ischiorectal fossa, these vessels were exposed in their passage through Alcock's canal (*see Appendix, notes* 145 *and* 151). The sphincter vaginæ or bulbocavernosus muscle was removed, together with the anterior extremity of the levator ani muscle, in order to lay bare the vaginal bulbs or bulbs of the vestibule (*see note* 1 *above*) and the transverse anastomoses of the veins that drain the blood away from these structures.

The Veins of the Female Perineal Region.


Inferior vena cava—V. cava inferior
Inferior mesenteric artery
A. mesenterica inferior
Abdominal aorta—Aorta abdominalis
Inferior mesenteric vein—V. mesenterica inferior
Ovarian vein
V. ovarica
Left ureter—Ureter sinister
Right common iliac artery
A. iliaca communis dextra
Left common iliac artery and vein
A. et V. iliaca communis sinistra
Left external iliac artery and vein
A. et V. iliaca externa sinistra
Ovarian vessels (in the suspensory ligament of the ovary)[10]
Vasa ovarica (in ligamento suspensorio ovarii)
Obliterated hypogastric artery[11]
Lig. umbilicale laterale
*Venous plexus of the round ligament of the uterus and artery of the round ligament of the uterus[12] (1)
Obturator artery and vein
A. et V. obturatoria
Parietal peritoneum
Peritonæum parietale
Urinary bladder
Vesica urinaria
Dorsal artery and vein of the clitoris
A. et V. dorsalis clitoridis
Retiform venous anastomoses of the vaginal bulb or bulb of the vestibule with the veins of the clitoris
Crus of the clitoris—Crus clitoridis
Internal pudic artery (*artery of the clitoris)[13] and internal pudic vein[4] (2)
Vaginal bulb or bulb of the vestibule[14]
Bulbus vestibuli
Left ascending lumbar vein
V. lumbalis ascendens sinistra
Left iliolumbar vein
V. iliolumbalis sinistra
Left internal iliac artery and vein[1]
A. et V. hypogastrica sinistra
Left ureter
Ureter sinister
Spinal branch of the lateral sacral artery and companion veins
Ramus spinalis arteriæ sacralis lateralis et venæ comitantes
Second sacral nerve
N. sacralis II.
Gluteal artery and vein
A. et V. glutæa superior
Lateral sacral artery
A. sacralis lateralis
Parietal peritoneum (site of the ovarian fossa)[2]
Peritonæum parietale (situs fossæ ovaricæ)
Superior hæmorrhoidal artery and vein[3]
A. et V. hæmorrhoidalis superior
Parietal peritoneum (lateral wall of the pouch of Douglas, or rectovaginal pouch)
Peritonæum parietale (paries lateralis excavationis recto-uterinæ)
2/3
Internal pudic artery and vein[4]
A. et V. pudenda interna
Middle hæmorrhoidal vein[5]
V. hæmorrhoidalis media
Hæmorrhoidal or rectal venous plexus[6]—Plexus hæmorrhoidalis
Pelvic diaphragm[7]
Diaphragma pelvis
Uterovaginal venous plexus[8]
Plexus uterovaginalis
Vesical venous plexus[9]
Plexus vesicalis
Rectum
Intestinum rectum
Vagina

(1) *Plexus venosus ligamenti teretis uteri et arteria ligamenti teretis uteri

(2) *A. clitoridis et V. pudenda interna

FIG. 1073.—THE OVARIAN VEIN, VENA OVARICA; THE VESICAL VENOUS PLEXUS (*see Appendix, note* 275), PLEXUS VESICALIS, AND THE UTEROVAGINAL PLEXUS (*see Appendix, note* 280), PLEXUS UTEROVAGINALIS; THE *VENOUS PLEXUS OF THE ROUND LIGAMENT OF THE UTERUS (*see note* 12 *above*), *PLEXUS VENOSUS LIGAMENTI TERETIS UTERI. THE SUPERIOR AND MIDDLE HÆMORRHOIDAL (OR RECTAL) VEINS, VENÆ HÆMORRHOIDALES SUPERIOR ET MEDIA; HÆMORRHOIDAL VENOUS PLEXUS, PLEXUS HÆMORRHOIDALIS. THE VENOUS PLEXUSES THAT SURROUND THE SPINAL BRANCHES OF THE ILIOLUMBAR AND LATERAL SACRAL ARTERIES.

By a section, which in front passed near the median plane, and behind through the left row of sacral foramina, the left lateral wall of the pelvis was removed; but the parietal peritoneal investment of this wall was preserved up to its reflection on to the urinary bladder, the vagina, and the rectum. The parts of these organs situate outside the peritoneum were laid bare in so far as this was possible without removing the adjacent venous plexuses. The pelvic diaphragm was turned downwards.

The Veins of the Female Pelvis.

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[1] See Appendix, note 120.
[2] A description of the *ovarian fossa* or *fovea* (*fossa ovarii*, Quain) is given in the Appendix to Part IV., note 79.—TR.
[3] Called by Macalister the *superior rectal artery* and *vein*.
[4] See note 3 to p. 672.
[5] Called by Macalister the *middle rectal vein*.
[6] See Appendix, note 250.
[7] See Appendix, note 140.
[8] See Appendix, note 281.
[9] See Appendix, note 275.
[10] This ligament is known also as the *infundibulopelvic* or *ovariopelvic fold* or *ligament*.
[11] Or *external umbilical ligament*. See Appendix, note 145.
[12] The homologues in the female of the *cremasteric vein* and *artery*, respectively, in the male.—TR.
[13] See Appendix, note 156.
[14] See Appendix to Part IV., note 91.

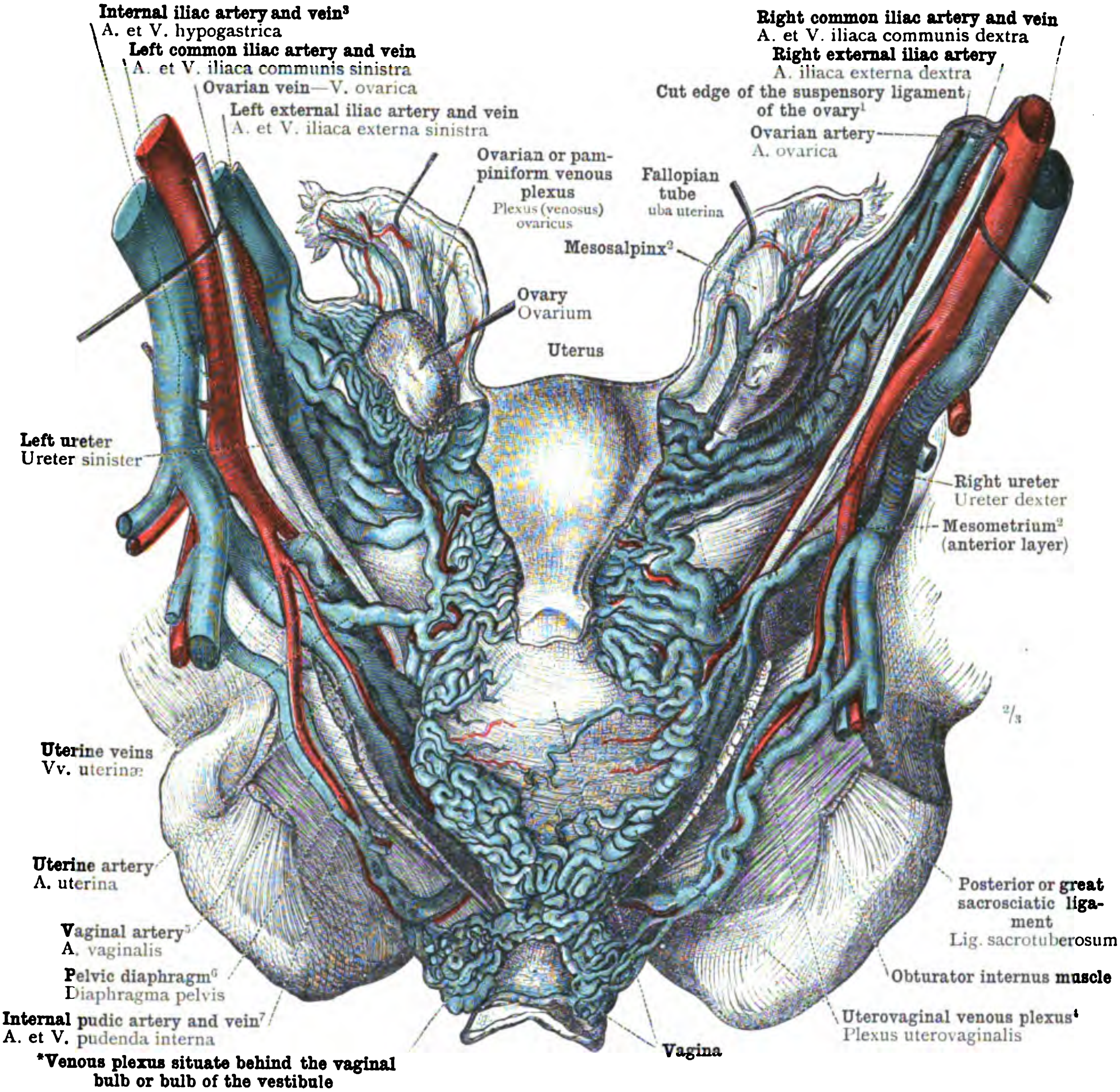
Internal iliac artery and vein[3]
A. et V. hypogastrica
Left common iliac artery and vein
A. et V. iliaca communis sinistra
Ovarian vein—V. ovarica
Left external iliac artery and vein
A. et V. iliaca externa sinistra
Ovarian or pampiniform venous plexus
Plexus (venosus) ovaricus
Fallopian tube
uba uterina
Mesosalpinx[2]
Ovary
Ovarium
Uterus
Right common iliac artery and vein
A. et V. iliaca communis dextra
Right external iliac artery
A. iliaca externa dextra
Cut edge of the suspensory ligament of the ovary[1]
Ovarian artery
A. ovarica
Left ureter
Ureter sinister
Right ureter
Ureter dexter
Mesometrium[2] (anterior layer)
2/3
Uterine veins
Vv. uterinæ
Uterine artery
A. uterina
Vaginal artery[5]
A. vaginalis
Pelvic diaphragm[6]
Diaphragma pelvis
Internal pudic artery and vein[7]
A. et V. pudenda interna
*Venous plexus situate behind the vaginal bulb or bulb of the vestibule
Posterior or great sacrosciatic ligament
Lig. sacrotuberosum
Obturator internus muscle
Uterovaginal venous plexus[4]
Plexus uterovaginalis
Vagina

Fig. 1074.—The Veins of the Uterus, the Vagina, the Ovaries, and the Fallopian Tubes, seen from Behind: the Ovarian Vein, Vena Ovarica, continued into the Ovarian or Pampiniform Venous Plexus, Plexus Venosus Ovaricus, and having Free Connexions with the Uterine Veins, Venæ Uterinæ, and the Uterovaginal Venous Plexus (*see Appendix, note* 281), Plexus Uterovaginalis. The Internal Pudic Vein, and its Connexions with the Venous Plexus situate Behind the Vaginal Bulb or Bulb of the Vestibule.

The posterior half of the pelvis, together with the rectum and the posterior layer of the mesometrium, having been removed by a coronal section passing just behind the spine of the ischium, the uterovaginal plexus, with the veins leading from it, was laid bare. The ovaries were drawn well upwards, in order to spread out their mesentery; the left ovary was also drawn somewhat inwards, so as to display, after the outer layer of the mesovarium had been removed, the ovarian or pampiniform venous plexus, plexus (venosus) ovaricus. The common iliac vessels and the ureters were drawn outwards on each side. The internal pudic vessels were fully exposed by the removal of the obturator fascia where it covers them as they pass along the outer wall of the ischiorectal fossa.

The Veins of the Female Pelvis.

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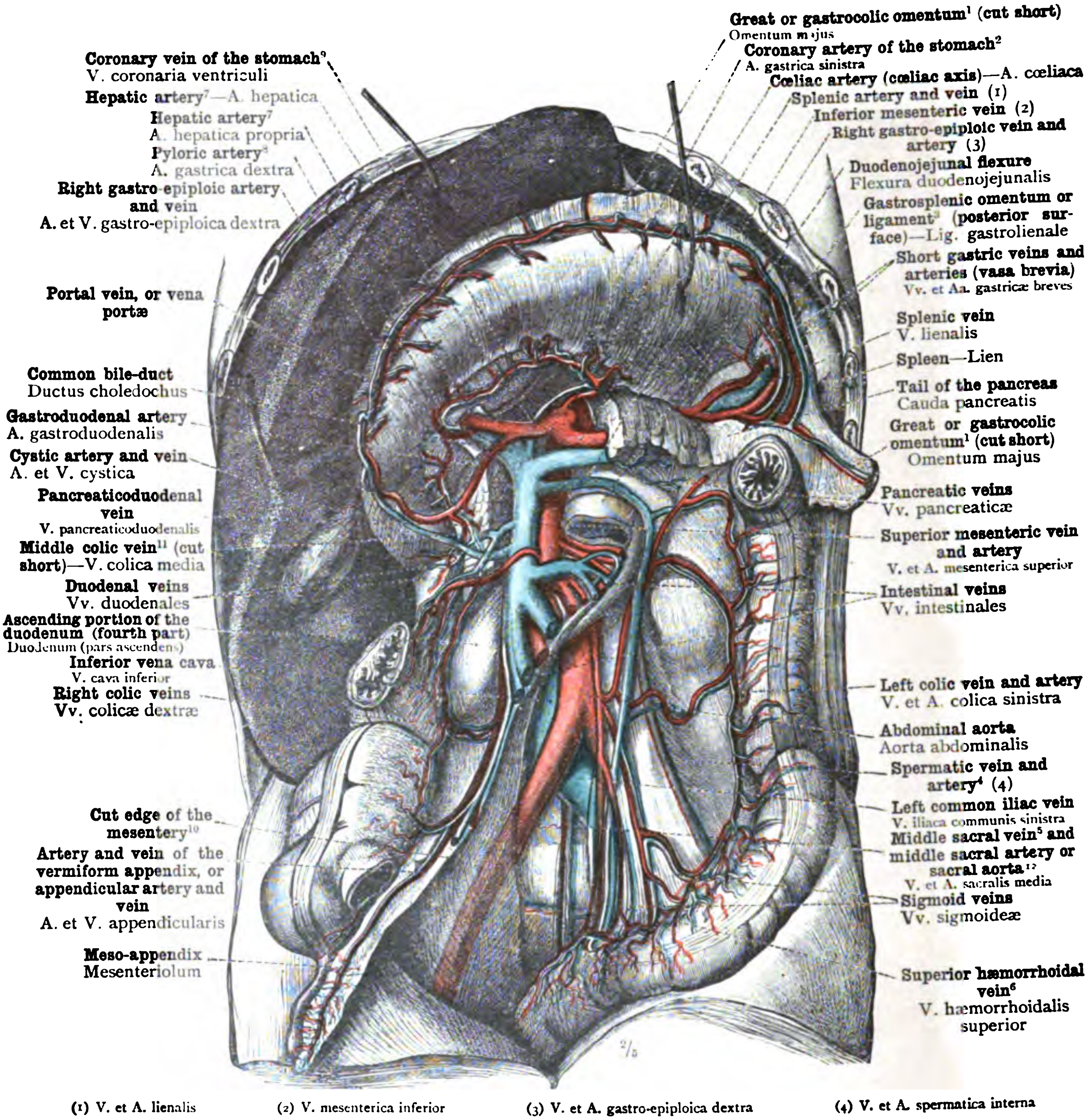
[1] Known also as the *infundibulopelvic* or *ovariopelvic fold* or *ligament*.
[2] See Appendix to Part IV., note 82.
[3] See Appendix, note 120.
[4] See Appendix, note 282.
[5] See Appendix, note 163.
[6] See Appendix, note 140.
[7] See note 3 to p. 672

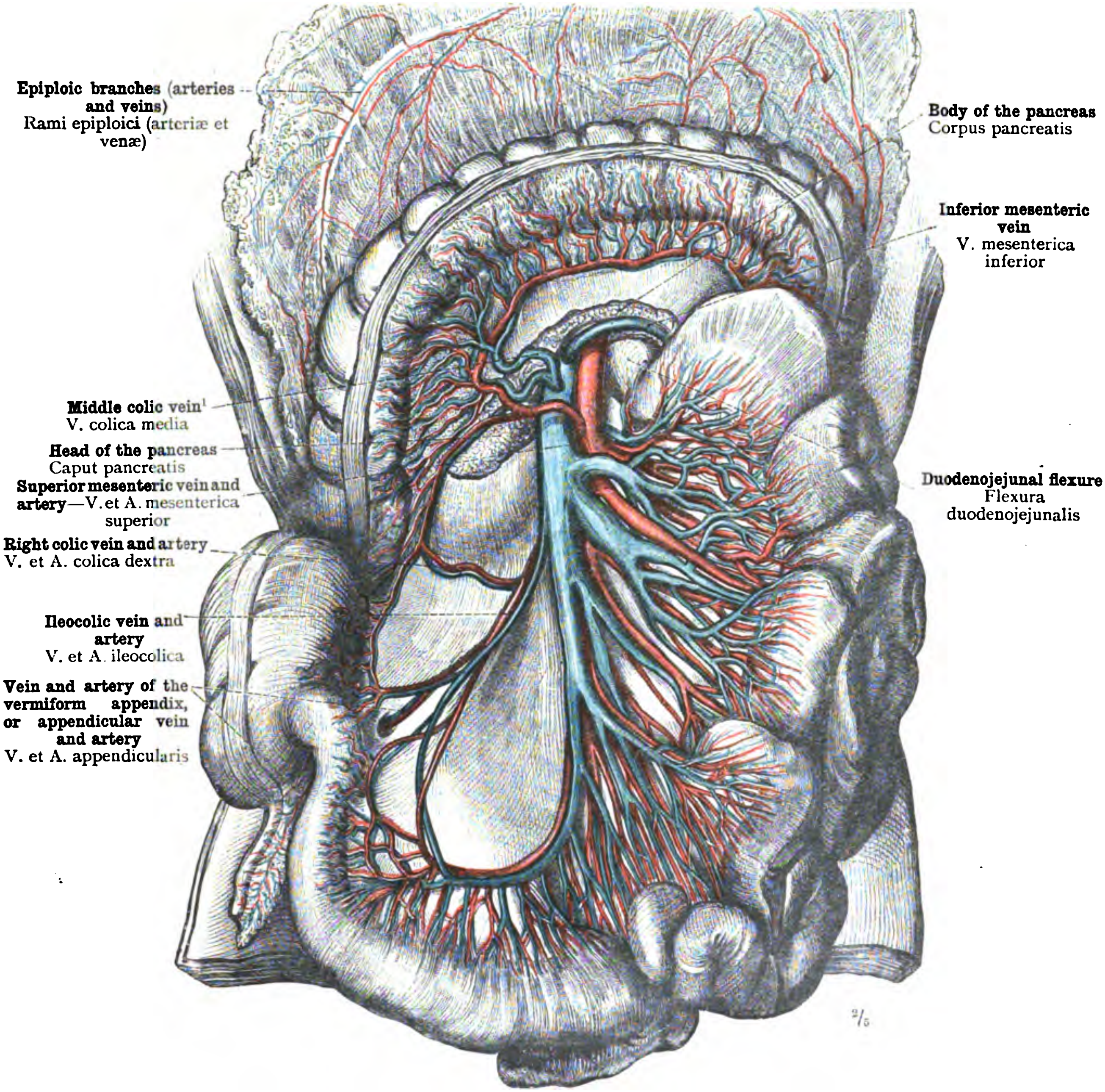

Coronary vein of the stomach[9]
V. coronaria ventriculi
Hepatic artery[7]—A. hepatica
Hepatic artery[7]
A. hepatica propria
Pyloric artery[8]
A. gastrica dextra
Right gastro-epiploic artery and vein
A. et V. gastro-epiploica dextra
Portal vein, or vena portæ
Common bile-duct
Ductus choledochus
Gastroduodenal artery
A. gastroduodenalis
Cystic artery and vein
A. et V. cystica
Pancreaticoduodenal vein
V. pancreaticoduodenalis
Middle colic vein[11] (cut short)—V. colica media
Duodenal veins
Vv. duodenales
Ascending portion of the duodenum (fourth part)
Duodenum (pars ascendens)
Inferior vena cava
V. cava inferior
Right colic veins
Vv. colicæ dextræ
Cut edge of the mesentery[10]
Artery and vein of the vermiform appendix, or appendicular artery and vein
A. et V. appendicularis
Meso-appendix
Mesenteriolum
Great or gastrocolic omentum[1] (cut short)
Omentum majus
Coronary artery of the stomach[2]
A. gastrica sinistra
Cœliac artery (cœliac axis)—A. cœliaca
Splenic artery and vein (1)
Inferior mesenteric vein (2)
Right gastro-epiploic vein and artery (3)
Duodenojejunal flexure
Flexura duodenojejunalis
Gastrosplenic omentum or ligament[3] (posterior surface)—Lig. gastrolienale
Short gastric veins and arteries (vasa brevia)
Vv. et Aa. gastricæ breves
Splenic vein
V. lienalis
Spleen—Lien
Tail of the pancreas
Cauda pancreatis
Great or gastrocolic omentum[1] (cut short)
Omentum majus
Pancreatic veins
Vv. pancreaticæ
Superior mesenteric vein and artery
V. et A. mesenterica superior
Intestinal veins
Vv. intestinales
Left colic vein and artery
V. et A. colica sinistra
Abdominal aorta
Aorta abdominalis
Spermatic vein and artery[4] (4)
Left common iliac vein
V. iliaca communis sinistra
Middle sacral vein[5] and middle sacral artery or sacral aorta[12]
V. et A. sacralis media
Sigmoid veins
Vv. sigmoideæ
Superior hæmorrhoidal vein[6]
V. hæmorrhoidalis superior
2/5
(1) V. et A. lienalis
(2) V. mesenterica inferior
(3) V. et A. gastro-epiploica dextra
(4) V. et A. spermatica interna

[1] Or *epiploon*.
[2] Called by Macalister the *gastric artery*.
[3] The *gastrosplenic omentum* is connected below with the *great* omentum, and is often regarded as a part of it.—Tr.
[4] See Appendix, note 277.
[5] See Appendix, note 253.
[6] Called by Macalister the *superior rectal vein*.
[7] See Appendix, note 132.
[8] Called by Macalister the *superior pyloric artery*. See Appendix, note 131.
[9] Called by Macalister the *gastric vein*.
[10] *I.e.*, the *mesentery of the jejunum and ileum*, which is always denoted in England by the term *mesentery* when used without qualification.—Tr.
[11] Called by Macalister the *transverse colic vein*.
[12] See Appendix, note 127.

FIG. 1075.—FORMATION OF THE PORTAL VEIN OR VENA PORTÆ BY THE CONFLUENCE OF THE SUPERIOR AND INFERIOR MESENTERIC VEINS, VENÆ MESENTERICÆ SUPERIOR ET INFERIOR, THE SPLENIC VEIN, VENA LIENALIS, AND THE CORONARY VEIN OF THE STOMACH OR GASTRIC VEIN, VENA CORONARIA VENTRICULI.

The great or gastrocolic omentum (or epiploon) was cut away immediately below the great curvature of the stomach, and the stomach itself was turned upwards. The jejunum and the ileum, as well as the transverse colon and the upper half of the ascending colon, were cut away, and the mesentery (*see note* 10 *above*) was cut away close to its root. The cæcum was drawn outwards, in order to stretch the meso-appendix and to display the artery and vein of the vermiform appendix (appendicular artery and vein—arteria et vena appendicularis) between its layers. By the partial removal of the pancreas, the confluence of the superior mesenteric vein, vena mesenterica superior, and the splenic vein, vena lienalis, was displayed. The abdominal aorta, the inferior vena cava, the middle sacral artery or sacral aorta, and the middle sacral vein, were exposed by the removal of the parietal peritoneum covering these vessels.

The Portal System of Veins.


Epiploic branches (arteries and veins)
Rami epiploici (arteriæ et venæ)
Body of the pancreas
Corpus pancreatis
Inferior mesenteric vein
V. mesenterica inferior
Middle colic vein[1]
V. colica media
Head of the pancreas
Caput pancreatis
Superior mesenteric vein and artery—V. et A. mesenterica superior
Duodenojejunal flexure
Flexura duodenojejunalis
Right colic vein and artery
V. et A. colica dextra
Ileocolic vein and artery
V. et A. ileocolica
Vein and artery of the vermiform appendix, or appendicular vein and artery
V. et A. appendicularis
2/5

[1] Called by Macalister the *transverse colic vein.*

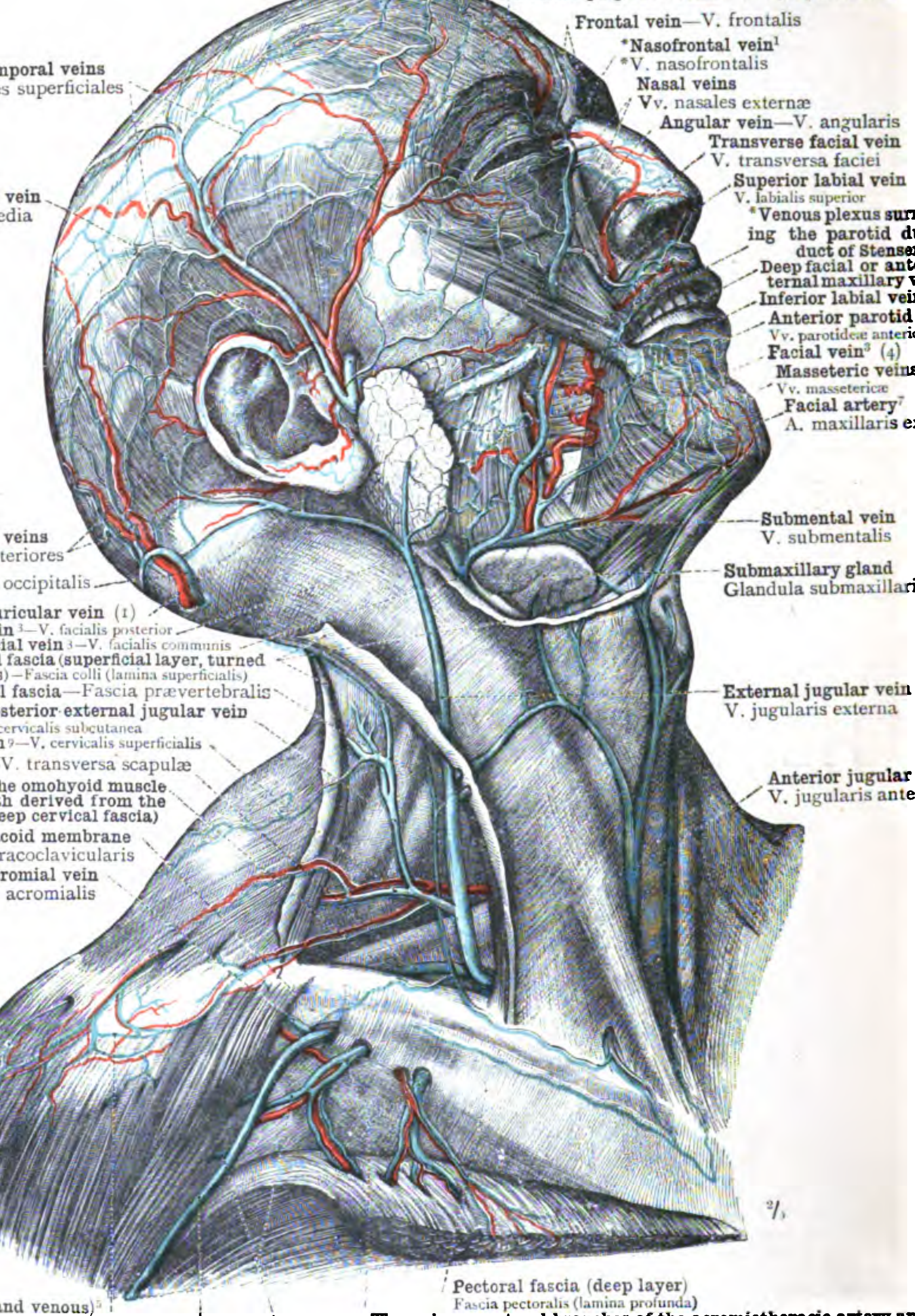
FIG. 1076.—THE TRIBUTARIES OF THE SUPERIOR MESENTERIC VEIN, VENA MESENTERICA SUPERIOR, AND THE TERMINAL PORTION OF THE INFERIOR MESENTERIC VEIN, VENA MESENTERICA INFERIOR. SEEN FROM BEFORE.

The jejunum (intestinum jejunum) and the ileum (intestinum ileum), with the mesentery (*see note* 10 *to p.* 678), were drawn to the left; the colon and the transverse mesocolon (mesocolon transversum), with the adjoining portion of the great or gastrocolic omentum (or epiploon), were drawn upwards.

V. mesenterica superior—The superior mesenteric vein.

VENÆ COLLI ET CAPITIS

THE VEINS OF THE HEAD AND NECK


Superior palpebral veins—Vv. palpebrales superiores
Inferior palpebral veins—Vv. palpebrales inferiores
Frontal vein—V. frontalis
*Nasofrontal vein[1]
*V. nasofrontalis
Nasal veins
Vv. nasales externæ
Angular vein—V. angularis
Transverse facial vein
V. transversa faciei
Superior labial vein
V. labialis superior
*Venous plexus surrounding the parotid duct or duct of Stensen
Deep facial or anterior internal maxillary vein[2] (2)
Inferior labial vein (3)
Anterior parotid veins
Vv. parotideæ anteriores
Facial vein[3] (4)
Masseteric veins
Vv. massetericæ
Facial artery[7]
A. maxillaris externa
Submental vein
V. submentalis
Submaxillary gland
Glandula submaxillaris
External jugular vein
V. jugularis externa
Anterior jugular vein[8]
V. jugularis anterior
Superficial temporal veins
Vv. temporales superficiales
Middle temporal vein
V. temporalis media
Anterior auricular veins
Vv. auriculares anteriores
Occipital vein—V. occipitalis
Posterior auricular vein (1)
Temporomaxillary vein[3]—V. facialis posterior
Common facial vein[3]—V. facialis communis
Deep cervical fascia (superficial layer, turned backwards)—Fascia colli (lamina superficialis)
Prevertebral fascia—Fascia prævertebralis
Posterior external jugular vein
V. cervicalis subcutanea
Superficial cervical vein[9]—V. cervicalis superficialis
Suprascapular vein[4]—V. transversa scapulæ
Posterior belly of the omohyoid muscle (enclosed in a sheath derived from the deep layer of the deep cervical fascia)
Costocoracoid membrane
Fascia coracoclavicularis
Acromial vein
V. acromialis
2/3
Acromial rete (arterial and venous)[5]
Rete acromiale
Cephalic vein
V. cephalica
*Deltoid veins[6]—*Vv. deltoideæ
Pectoral fascia (deep layer)
Fascia pectoralis (lamina profunda)
Thoracic or pectoral branches of the acromiothoracic artery and vein
Rami pectorales arteriæ et venæ thoraco-acromialis

(1) V. auricularis posterior (2) V. anastomotica facialis (3) V. labialis inferior (4) V. facialis anterior

[1] See Appendix, note 282.

[2] This vein is a communicating branch from the *pterygoid venous plexus.*

[3] See Appendix, note 283.

[4] Known also as the *transverse scapular* or *transverse humeral vein.*

[5] See Appendix, note 170.

[6] See Appendix, note 284.

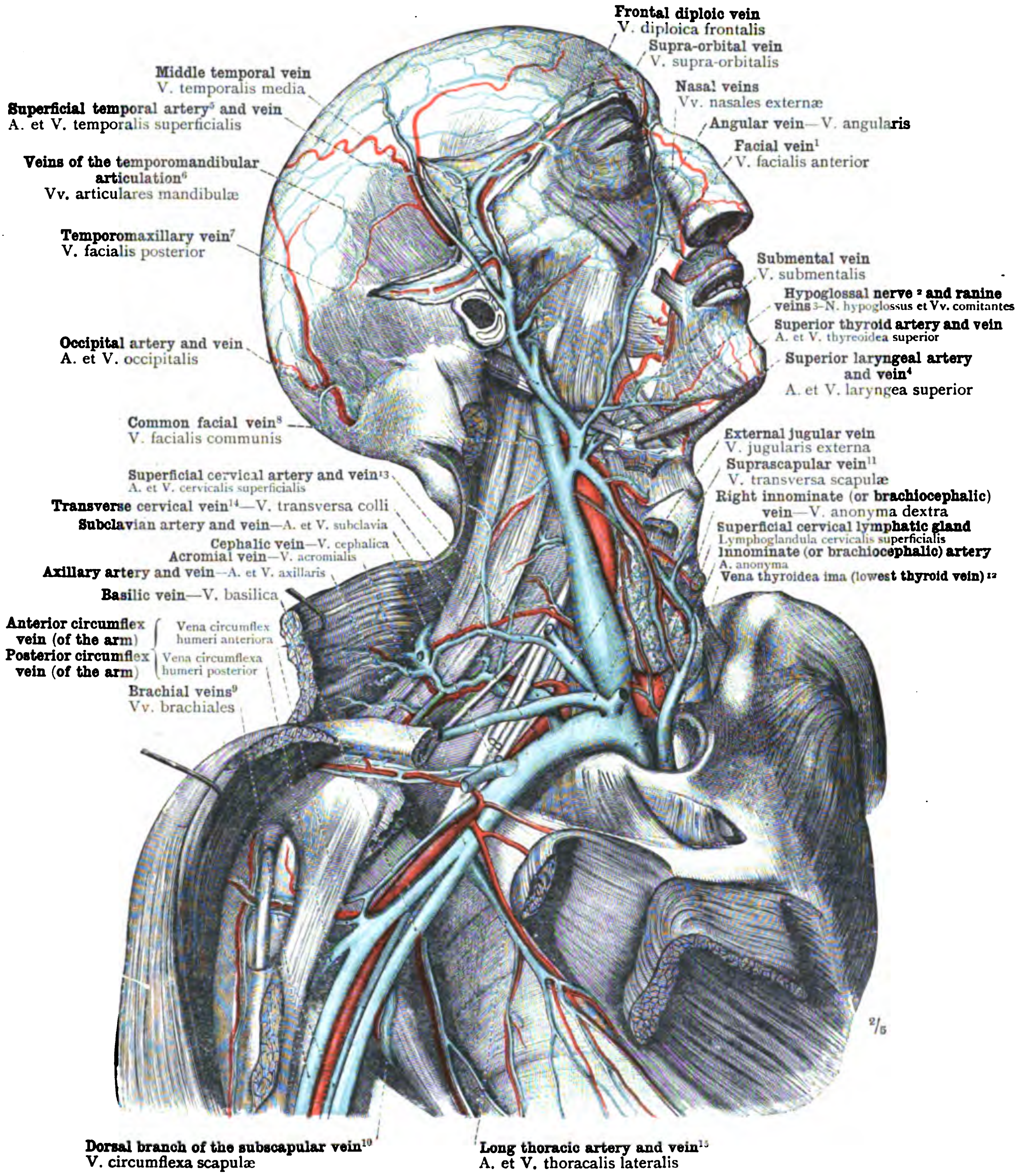
[7] See Appendix, note 166.

[8] See Appendix, note 197.

[9] See Appendix, note 285.

FIG. 1077.—THE SUPERFICIAL VEINS OF THE HEAD AND NECK: THE ORIGIN OF THE FACIAL (OR ANTERIOR FACIAL) VEIN, VENA FACIALIS ANTERIOR, AND THE TEMPOROMAXILLARY (OR POSTERIOR FACIAL) VEIN, VENA FACIALIS POSTERIOR (*see Appendix, note* 283); THE OCCIPITAL VEIN, VENA OCCIPITALIS; THE ANTERIOR AND EXTERNAL JUGULAR VEINS, VENÆ JUGULARES ANTERIOR ET EXTERNA; THE POSTERIOR EXTERNAL JUGULAR VEIN, VENA CERVICALIS SUBCUTANEA.

The Veins of the Head and Neck.


Frontal diploic vein
V. diploica frontalis
Supra-orbital vein
V. supra-orbitalis
Nasal veins
Vv. nasales externæ
Angular vein—V. angularis
Facial vein[1]
V. facialis anterior
Middle temporal vein
V. temporalis media
Superficial temporal artery[5] and vein
A. et V. temporalis superficialis
Veins of the temporomandibular articulation[6]
Vv. articulares mandibulæ
Temporomaxillary vein[7]
V. facialis posterior
Submental vein
V. submentalis
Hypoglossal nerve[2] and ranine veins[3]—N. hypoglossus et Vv. comitantes
Superior thyroid artery and vein
A. et V. thyreoidea superior
Superior laryngeal artery and vein[4]
A. et V. laryngea superior
Occipital artery and vein
A. et V. occipitalis
Common facial vein[8]
V. facialis communis
External jugular vein
V. jugularis externa
Suprascapular vein[11]
V. transversa scapulæ
Right innominate (or brachiocephalic) vein—V. anonyma dextra
Superficial cervical lymphatic gland
Lymphoglandula cervicalis superficialis
Innominate (or brachiocephalic) artery
A. anonyma
Vena thyroidea ima (lowest thyroid vein)[12]
Superficial cervical artery and vein[13]
A. et V. cervicalis superficialis
Transverse cervical vein[14]—V. transversa colli
Subclavian artery and vein—A. et V. subclavia
Cephalic vein—V. cephalica
Acromial vein—V. acromialis
Axillary artery and vein—A. et V. axillaris
Basilic vein—V. basilica
Anterior circumflex vein (of the arm)
Vena circumflex humeri anteriora
Posterior circumflex vein (of the arm)
Vena circumflexa humeri posterior
Brachial veins[9]
Vv. brachiales
2/5
Dorsal branch of the subscapular vein[10]
V. circumflexa scapulæ
Long thoracic artery and vein[15]
A. et V. thoracalis lateralis

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[1] Sometimes distinguished as the *anterior facial vein.* See Appendix, note 283.
[2] *Twelfth cranial nerve* in Soemmerring's enumeration, *ninth* in that of Willis; sometimes also known as the *lingual motor nerve.*
[3] See Appendix, note 286. [4] Or *laryngeal branches* of the *superior thyroid artery* and *vein*, respectively.
[5] See Appendix, note 168. [6] See Appendix, note 287. [7] Sometimes called the *posterior facial vein.* See Appendix, note 283.
[8] See Appendix, note 283. [9] Or *venæ comites of the brachial artery.* [10] Often called the *dorsalis scapulæ* vein.
[11] Known also as the *transverse scapular* or *transverse humeral vein.* [12] Companion to the *thyroidea ima artery.* See note [1] to p. 590.
[13] See Appendix, note 285. [14] See Appendix, note 262. [15] Known also as the *external mammary artery* and *vein.*

FIG. 1078.—THE FACIAL VEIN (*see note* [1] *above*), VENA FACIALIS ANTERIOR; THE FORMATION OF THE TEMPOROMAXILLARY VEIN (*see note* [7] *above*), VENA FACIALIS POSTERIOR; THE INTERNAL JUGULAR VEIN, VENA JUGULARIS INTERNA; THE AXILLARY VEIN, VENA AXILLARIS. SEEN FROM THE RIGHT SIDE AND BEFORE.

Veins of the Head, the Neck, and the Axilla.

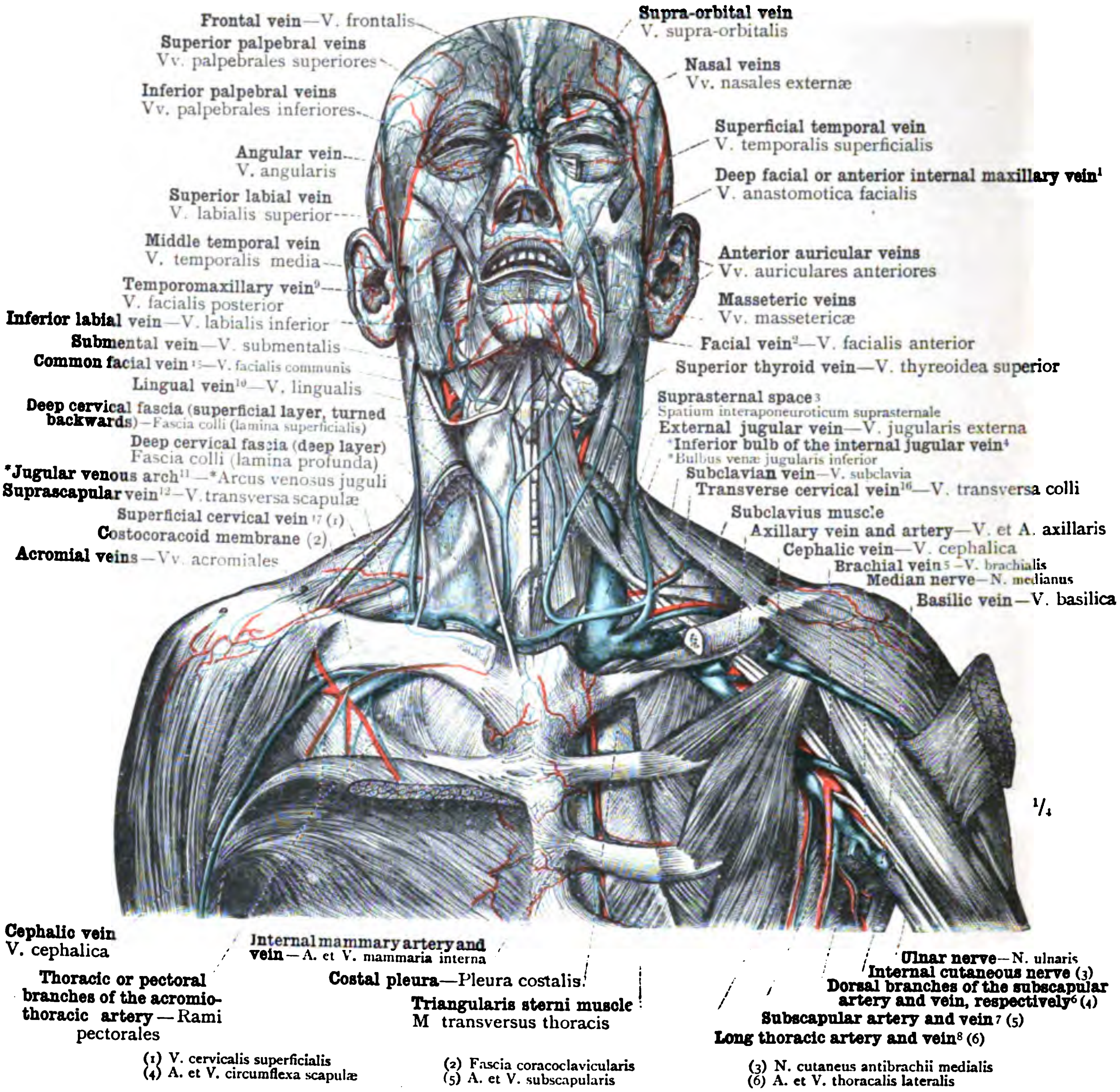
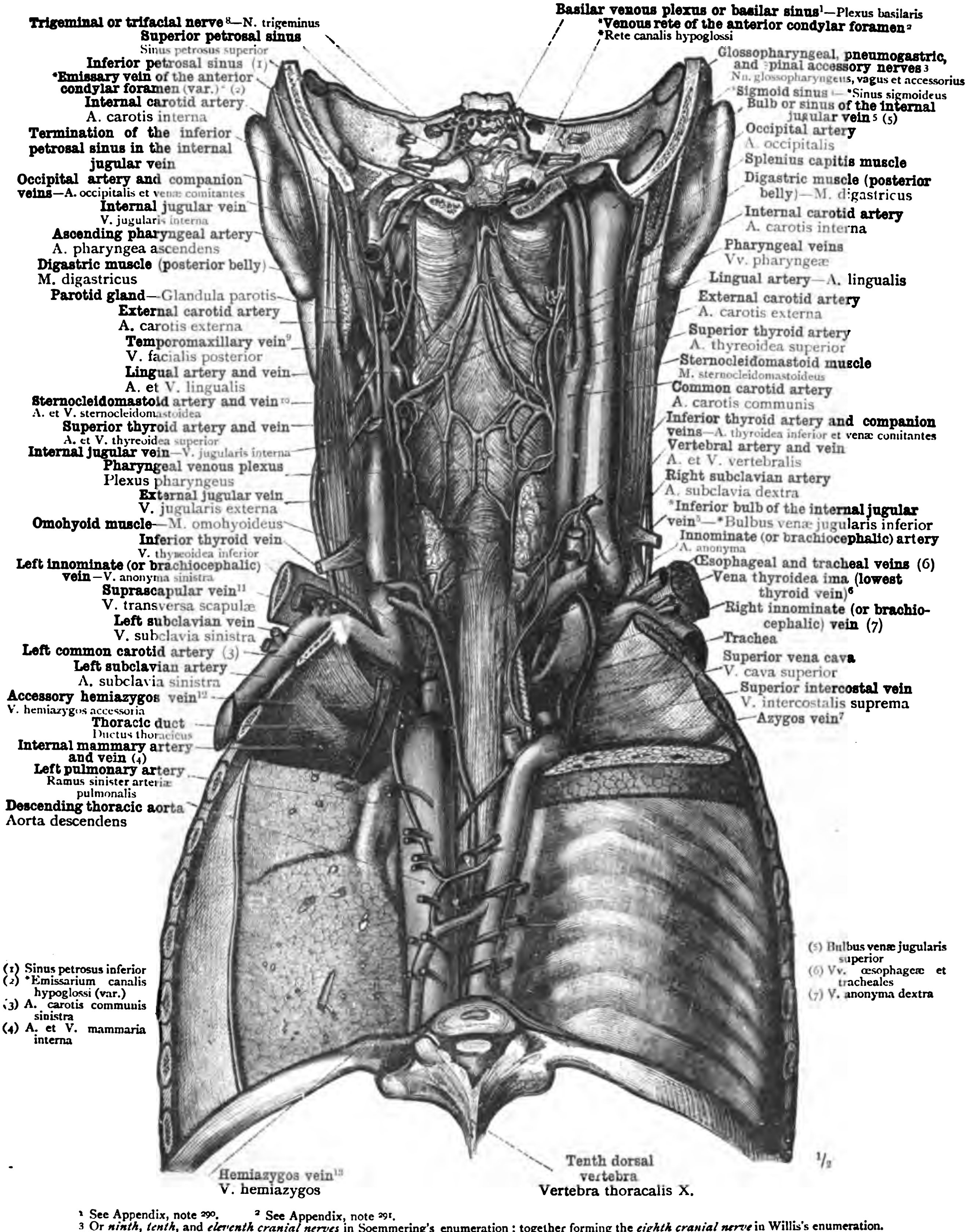

Frontal vein—V. frontalis
Superior palpebral veins
Vv. palpebrales superiores
Inferior palpebral veins
Vv. palpebrales inferiores
Angular vein
V. angularis
Superior labial vein
V. labialis superior
Middle temporal vein
V. temporalis media
Temporomaxillary vein[9]
V. facialis posterior
Inferior labial vein—V. labialis inferior
Submental vein—V. submentalis
Common facial vein[15]—V. facialis communis
Lingual vein[10]—V. lingualis
Deep cervical fascia (superficial layer, turned backwards)—Fascia colli (lamina superficialis)
Deep cervical fascia (deep layer)
Fascia colli (lamina profunda)
*Jugular venous arch[11]—*Arcus venosus juguli
Suprascapular vein[12]—V. transversa scapulæ
Superficial cervical vein[17] (1)
Costocoracoid membrane (2)
Acromial veins—Vv. acromiales
Supra-orbital vein
V. supra-orbitalis
Nasal veins
Vv. nasales externæ
Superficial temporal vein
V. temporalis superficialis
Deep facial or anterior internal maxillary vein[1]
V. anastomotica facialis
Anterior auricular veins
Vv. auriculares anteriores
Masseteric veins
Vv. massetericæ
Facial vein[2]—V. facialis anterior
Superior thyroid vein—V. thyreoidea superior
Suprasternal space[3]
Spatium interaponeuroticum suprasternale
External jugular vein—V. jugularis externa
*Inferior bulb of the internal jugular vein[4]
*Bulbus venæ jugularis inferior
Subclavian vein—V. subclavia
Transverse cervical vein[16]—V. transversa colli
Subclavius muscle
Axillary vein and artery—V. et A. axillaris
Cephalic vein—V. cephalica
Brachial vein[5]—V. brachialis
Median nerve—N. medianus
Basilic vein—V. basilica
1/4
Cephalic vein
V. cephalica
Thoracic or pectoral branches of the acromio-thoracic artery—Rami pectorales
Internal mammary artery and vein—A. et V. mammaria interna
Costal pleura—Pleura costalis
Triangularis sterni muscle
M transversus thoracis
Ulnar nerve—N. ulnaris
Internal cutaneous nerve (3)
Dorsal branches of the subscapular artery and vein, respectively[6] (4)
Subscapular artery and vein[7] (5)
Long thoracic artery and vein[8] (6)
(1) V. cervicalis superficialis
(4) A. et V. circumflexa scapulæ
(2) Fascia coracoclavicularis
(5) A. et V. subscapularis
(3) N. cutaneus antibrachii medialis
(6) A. et V. thoracalis lateralis

FIG. 1079.—THE SUPERFICIAL VEINS OF THE FACE, THE SUPERFICIAL AND DEEP VEINS OF THE NECK, AND THE VEINS OF THE AXILLA; SEEN FROM BEFORE.

On the right side of the neck, by the removal of the superficial layer of the deep cervical fascia, the *submaxillary fossa (*fossa submaxillaris—*see note [13] below*), the *greater supraclavicular fossa (fossa supraclavicularis major—*see note [14] below*), and the suprasternal space (spatium interaponeuroticum suprasternale—*see note [3] below*), were opened. The lower half of the right sternocleidomastoid muscle was removed, together with the corresponding portion of the superficial layer of the deep cervical fascia, in order to lay bare the opening of the *jugular venous arch (*see Appendix, note [123]*) into the terminal portion of the external jugular vein. On the left side of the neck the ensheathing portion of the deep cervical fascia was entirely removed, and the lower half of the sternocleidomastoid muscle was removed, together with the sternal extremity of the clavicle, in order to display the deep venous trunks and the left *venous angle (*angulus venosus—*see Appendix, note [125]*). On the right side of the body, the clavicular portion of the pectoralis major muscle has been turned downwards, thus exposing the axillary vein above the pectoralis minor muscle. On the left side of the body, the pectoralis major muscle having been removed, the vessels and nerves of the axilla were dissected out. Further, on this side, by the partial removal of the anterior or external intercostal aponeuroses and of the internal intercostal muscles, the internal mammary vessels were exposed, and their relation to the costal pleura and to the triangularis sterni muscle was displayed.

[1] See note [2] to p. 682.
[2] Sometimes distinguished as the *anterior facial vein*. See Appendix, note [283].
[3] Called by Macalister *Burns's space*.
[4] See Appendix, note [121].
[5] Or *vena comes of the brachial artery*.
[6] Known also as the *dorsalis scapulæ artery* and *vein*, respectively.
[7] See Appendix, note [203].
[8] Known also as the *external mammary artery* and vein.
[9] Sometimes called the *posterior facial vein*. See Appendix, note [283].
[10] Or *vena comes of the lingual artery*. See Appendix, note [286].
[11] See Appendix, note [123].
[12] Known also as the *transverse scapular* or *transverse humeral vein*.
[13] See Appendix, note [288].
[14] See Appendix, note [289].
[15] See Appendix, note [283].
[16] See Appendix, note [262].
[17] See Appendix, note [285].

Veins of the Head, the Neck, and the Axilla.


Trigeminal or trifacial nerve[8]—N. trigeminus
Superior petrosal sinus
Sinus petrosus superior
Inferior petrosal sinus (1)
*Emissary vein of the anterior condylar foramen (var.)[*] (2)
Internal carotid artery
A. carotis interna
Termination of the inferior petrosal sinus in the internal jugular vein
Occipital artery and companion veins—A. occipitalis et venæ comitantes
Internal jugular vein
V. jugularis interna
Ascending pharyngeal artery
A. pharyngea ascendens
Digastric muscle (posterior belly)
M. digastricus
Parotid gland—Glandula parotis
External carotid artery
A. carotis externa
Temporomaxillary vein[9]
V. facialis posterior
Lingual artery and vein
A. et V. lingualis
Sternocleidomastoid artery and vein[10]
A. et V. sternocleidomastoidea
Superior thyroid artery and vein
A. et V. thyreoidea superior
Internal jugular vein—V. jugularis interna
Pharyngeal venous plexus
Plexus pharyngeus
External jugular vein
V. jugularis externa
Omohyoid muscle—M. omohyoideus
Inferior thyroid vein
V. thyreoidea inferior
Left innominate (or brachiocephalic) vein—V. anonyma sinistra
Suprascapular vein[11]
V. transversa scapulæ
Left subclavian vein
V. subclavia sinistra
Left common carotid artery (3)
Left subclavian artery
A. subclavia sinistra
Accessory hemiazygos vein[12]
V. hemiazygos accessoria
Thoracic duct
Ductus thoracicus
Internal mammary artery and vein (4)
Left pulmonary artery
Ramus sinister arteriæ pulmonalis
Descending thoracic aorta
Aorta descendens
(1) Sinus petrosus inferior
(2) *Emissarium canalis hypoglossi (var.)
(3) A. carotis communis sinistra
(4) A. et V. mammaria interna
Hemiazygos vein[13]
V. hemiazygos
Tenth dorsal vertebra
Vertebra thoracalis X.
Basilar venous plexus or basilar sinus[1]—Plexus basilaris
*Venous rete of the anterior condylar foramen[2]
*Rete canalis hypoglossi
Glossopharyngeal, pneumogastric, and spinal accessory nerves[3]
Nn. glossopharyngeus, vagus et accessorius
*Sigmoid sinus[4]—*Sinus sigmoideus
Bulb or sinus of the internal jugular vein[5] (5)
Occipital artery
A. occipitalis
Splenius capitis muscle
Digastric muscle (posterior belly)—M. digastricus
Internal carotid artery
A. carotis interna
Pharyngeal veins
Vv. pharyngeæ
Lingual artery—A. lingualis
External carotid artery
A. carotis externa
Superior thyroid artery
A. thyreoidea superior
Sternocleidomastoid muscle
M. sternocleidomastoideus
Common carotid artery
A. carotis communis
Inferior thyroid artery and companion veins—A. thyroidea inferior et venæ comitantes
Vertebral artery and vein
A. et V. vertebralis
Right subclavian artery
A. subclavia dextra
*Inferior bulb of the internal jugular vein[5]—*Bulbus venæ jugularis inferior
Innominate (or brachiocephalic) artery
A. anonyma
Œsophageal and tracheal veins (6)
Vena thyroidea ima (lowest thyroid vein)[6]
Right innominate (or brachiocephalic) vein (7)
Trachea
Superior vena cava
V. cava superior
Superior intercostal vein
V. intercostalis suprema
Azygos vein[7]
(5) Bulbus venæ jugularis superior
(6) Vv. œsophageæ et tracheales
(7) V. anonyma dextra
1/2

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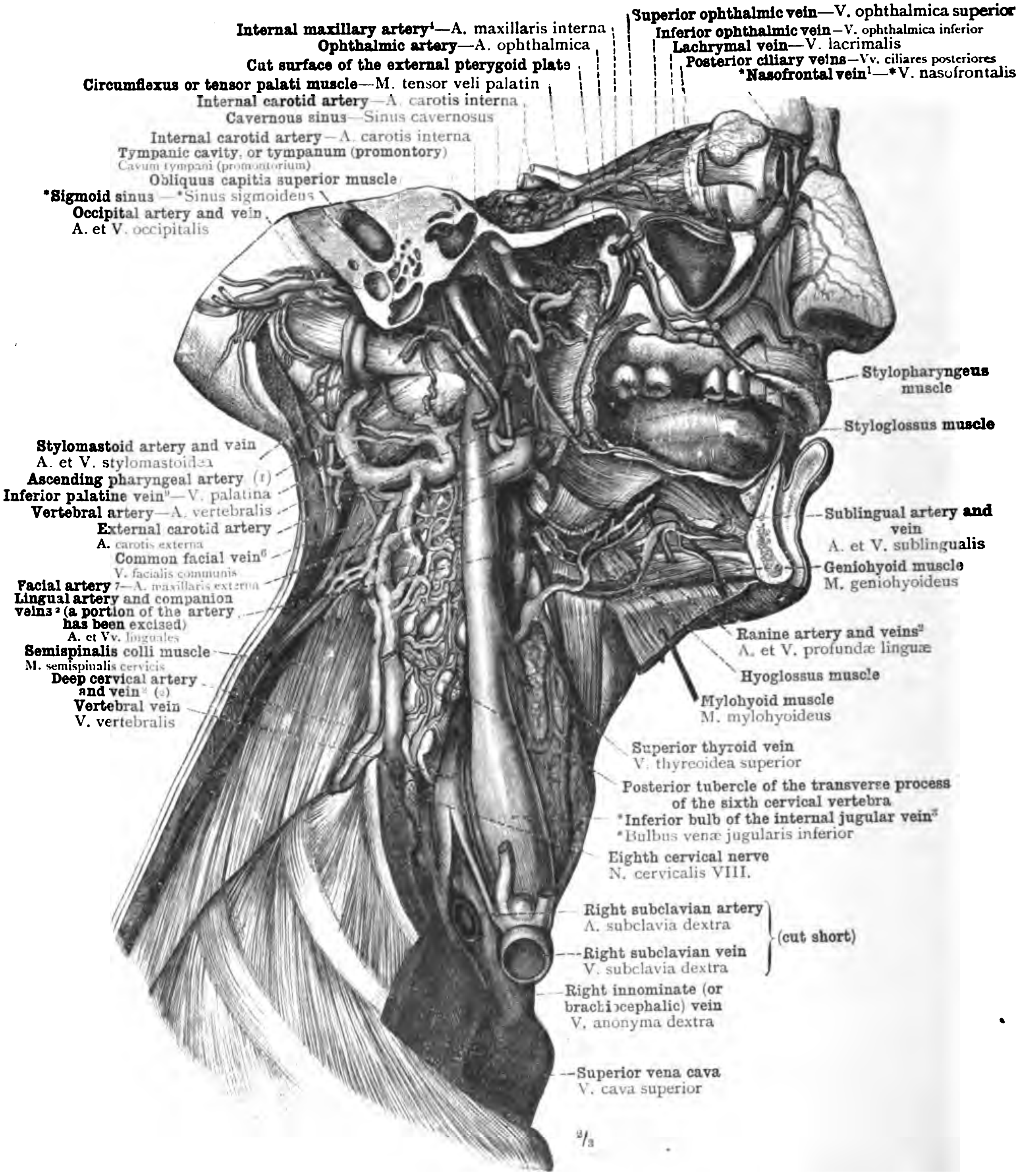
[1] See Appendix, note 290. [2] See Appendix, note 291.
[3] Or *ninth, tenth*, and *eleventh cranial nerves* in Soemmering's enumeration; together forming the *eighth cranial nerve* in Willis's enumeration.
[4] The *sigmoid sinus* is the proximal portion of the *lateral sinus* as described by most English anatomists. See Appendix, note 264.
[5] See Appendix, note 11. [6] Companion to the *thyroidea ima artery*. See note [1] to p. 590.
[7] Known also as the *right* or *large azygos vein*. [8] Or *fifth cranial nerve*.
[9] Sometimes called the *posterior facial* vein. See Appendix, note 283. [10] See Appendix, note 160.
[11] Known also as the *transverse scapular* or *transverse humeral vein*. [12] Known also as the *left upper azygos vein*.
[13] Known also as the *left lower* or *small azygos vein*.

FIG. 1080.—THE VEINS OF THE PHARYNX, THE ŒSOPHAGUS, AND THE TRACHEA; THE BASILAR VENOUS PLEXUS OR BASILAR SINUS (*see Appendix, note* 290), PLEXUS BASILARIS; THE AZYGOS, HEMIAZYGOS, AND ACCESSORY HEMIAZYGOS VEINS (*see notes* 7, 12, *and* 13 *above*); THE THORACIC DUCT, DUCTUS THORACICUS. SEEN FROM BEHIND.

The Pharyngeal and Basilar Venous Plexuses.—The Azygos Veins.


Internal maxillary artery[1]—A. maxillaris interna
Ophthalmic artery—A. ophthalmica
Cut surface of the external pterygoid plate
Circumflexus or tensor palati muscle—M. tensor veli palatin
Internal carotid artery—A. carotis interna
Cavernous sinus—Sinus cavernosus
Internal carotid artery—A. carotis interna
Tympanic cavity, or tympanum (promontory)
Cavum tympani (promontorium)
Obliquus capitis superior muscle
*Sigmoid sinus—*Sinus sigmoideus[5]
Occipital artery and vein
A. et V. occipitalis
Superior ophthalmic vein—V. ophthalmica superior
Inferior ophthalmic vein—V. ophthalmica inferior
Lachrymal vein—V. lacrimalis
Posterior ciliary veins—Vv. ciliares posteriores
*Nasofrontal vein[1]—*V. nasofrontalis
Stylopharyngeus muscle
Styloglossus muscle
Stylomastoid artery and vein
A. et V. stylomastoidea
Ascending pharyngeal artery (1)
Inferior palatine vein[9]—V. palatina
Vertebral artery—A. vertebralis
External carotid artery
A. carotis externa
Common facial vein[6]
V. facialis communis
Facial artery[7]—A. maxillaris externa
Lingual artery and companion veins[2] (a portion of the artery has been excised)
A. et Vv. linguales
Semispinalis colli muscle
M. semispinalis cervicis
Deep cervical artery and vein[8] (2)
Vertebral vein
V. vertebralis
Sublingual artery and vein
A. et V. sublingualis
Geniohyoid muscle
M. geniohyoideus
Ranine artery and veins[2]
A. et V. profundæ linguæ
Hyoglossus muscle
Mylohyoid muscle
M. mylohyoideus
Superior thyroid vein
V. thyreoidea superior
Posterior tubercle of the transverse process of the sixth cervical vertebra
*Inferior bulb of the internal jugular vein[3]
*Bulbus venæ jugularis inferior
Eighth cervical nerve
N. cervicalis VIII.
Right subclavian artery
A. subclavia dextra
Right subclavian vein
V. subclavia dextra
(cut short)
Right innominate (or brachiocephalic) vein
V. anonyma dextra
Superior vena cava
V. cava superior
2/3

(1) A. pharyngea ascendens (2) A. et V. cervicalis profunda

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[1] See Appendix, note 282. [2] See Appendix, note 286. [3] See Appendix, note 121. [4] See Appendix, note 166.
[5] The **sigmoid sinus* is the proximal portion of the *lateral sinus* as described by most English anatomists. See Appendix, note 264.
[6] See Appendix, note 283. [7] See Appendix, note 166. [8] The *deep cervical vein* is known also as the *posterior vertebral vein*. [9] See note 7 to p. 689.

FIG. 1081.—THE CAVERNOUS SINUS AND THE VEINS OF THE ORBIT; THE DEEP VISCERAL VEINS OF THE HEAD AND NECK; THE DEEP CERVICAL OR POSTERIOR VERTEBRAL VEIN, VENA CERVICALIS PROFUNDA, AND THE VERTEBRAL VEIN, VENA VERTEBRALIS. SEEN FROM THE RIGHT SIDE.

The Deep Veins of the Head and Neck.

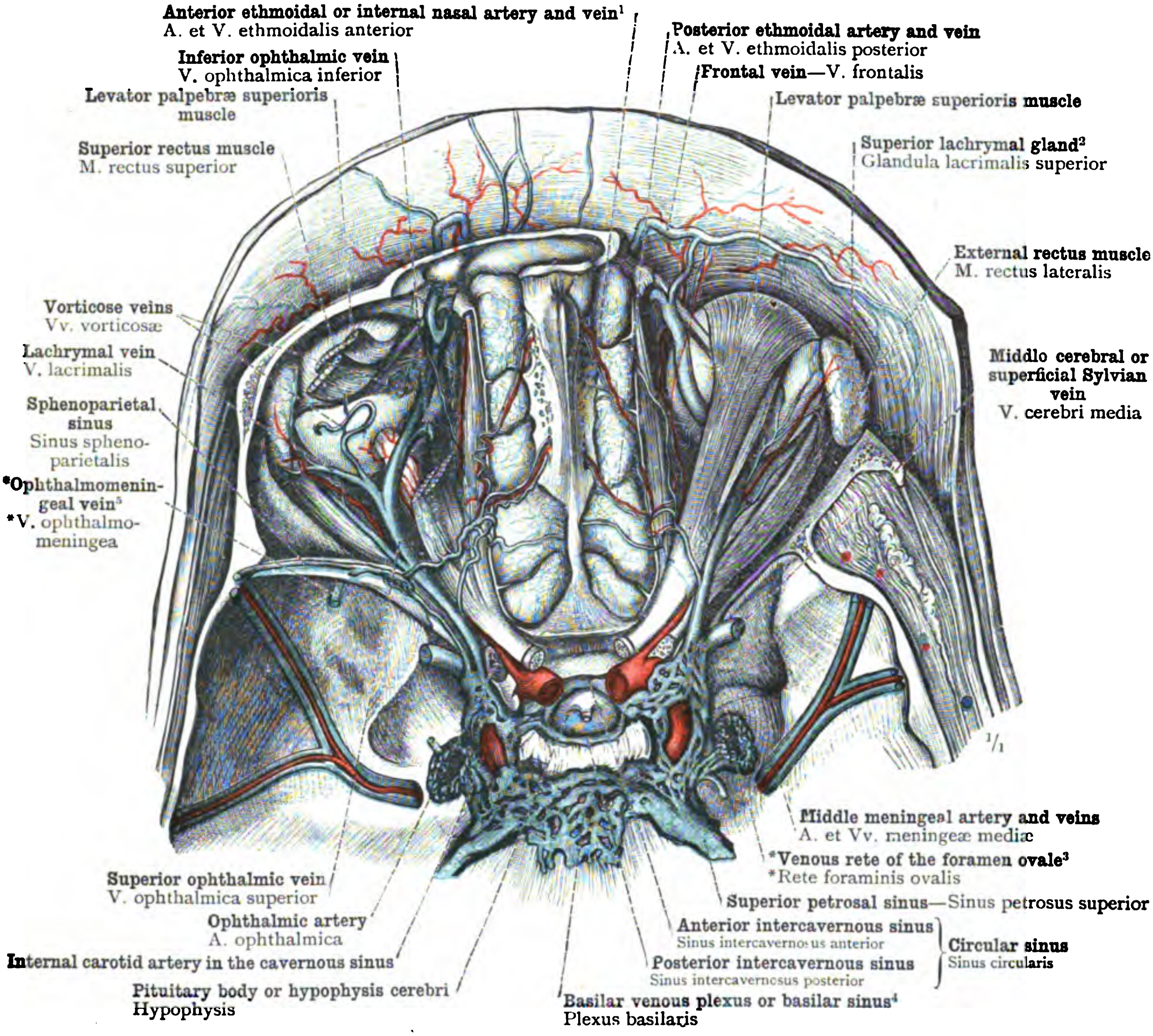
Anterior ethmoidal or internal nasal artery and vein[1]
A. et V. ethmoidalis anterior
Inferior ophthalmic vein
V. ophthalmica inferior
Levator palpebræ superioris muscle
Superior rectus muscle
M. rectus superior
Vorticose veins
Vv. vorticosæ
Lachrymal vein
V. lacrimalis
Sphenoparietal sinus
Sinus sphenoparietalis
*Ophthalmomeningeal vein[5]
*V. ophthalmomeningea
Posterior ethmoidal artery and vein
A. et V. ethmoidalis posterior
Frontal vein—V. frontalis
Levator palpebræ superioris muscle
Superior lachrymal gland[2]
Glandula lacrimalis superior
External rectus muscle
M. rectus lateralis
Middle cerebral or superficial Sylvian vein
V. cerebri media
1/1
Middle meningeal artery and veins
A. et Vv. meningeæ mediæ
*Venous rete of the foramen ovale[3]
*Rete foraminis ovalis
Superior petrosal sinus—Sinus petrosus superior
Anterior intercavernous sinus
Sinus intercavernosus anterior
Posterior intercavernous sinus
Sinus intercavernosus posterior
Circular sinus
Sinus circularis
Basilar venous plexus or basilar sinus[4]
Plexus basilaris
Superior ophthalmic vein
V. ophthalmica superior
Ophthalmic artery
A. ophthalmica
Internal carotid artery in the cavernous sinus
Pituitary body or hypophysis cerebri
Hypophysis

Fig. 1082.—The Veins of the Orbit, seen from Above: the Superior Ophthalmic Vein, Vena Ophthalmica Superior, its Confluence with the Inferior Ophthalmic Vein, Vena Ophthalmica Inferior, and its Termination in the Cavernous Sinus, Sinus Cavernosus; the Lachrymal Vein, Vena Lacrimalis; the Vorticose Veins, Venæ Vorticosæ; Muscular Veins, Venæ Musculares; the *Ophthalmomeningeal Vein, *Vena Ophthalmomeningea, opening posteriorly, in this Specimen, into the Sphenoparietal Sinus, Sinus Sphenoparietalis. The Cavernous Sinus, Sinus Cavernosus, and the Anterior and Posterior Intercavernous Sinuses, Sinus Cavernosi Anterior et Posterior, the Right and Left Cavernous Sinuses and the Anterior and Posterior Intercavernous Sinuses, combining to make up the Circular Sinus, Sinus Circularis. The Basilar Venous Plexus or Basilar Sinus (*see note* [4] *above*), Plexus Basilaris. The Middle Meningeal Artery and Veins, Arteria et Venæ Meningeæ Mediæ.

The left orbit was opened, by the removal of its roof, the right by the removal of its roof and the greater part of its outer wall. On the right side, the muscles of the orbit were left intact; on the left side, the levator palpebræ superioris and superior rectus muscle were partly removed, in order to lay bare the superior ophthalmic vein throughout its whole course. On the left side, in the dura mater covering the inferior surface of the small wing of the sphenoid bone (this wing having first been removed), the sphenoparietal sinus was exposed, and was traced to its termination in the cavernous sinus.

The Veins of the Orbit.—The Cavernous and Circular Sinuses.

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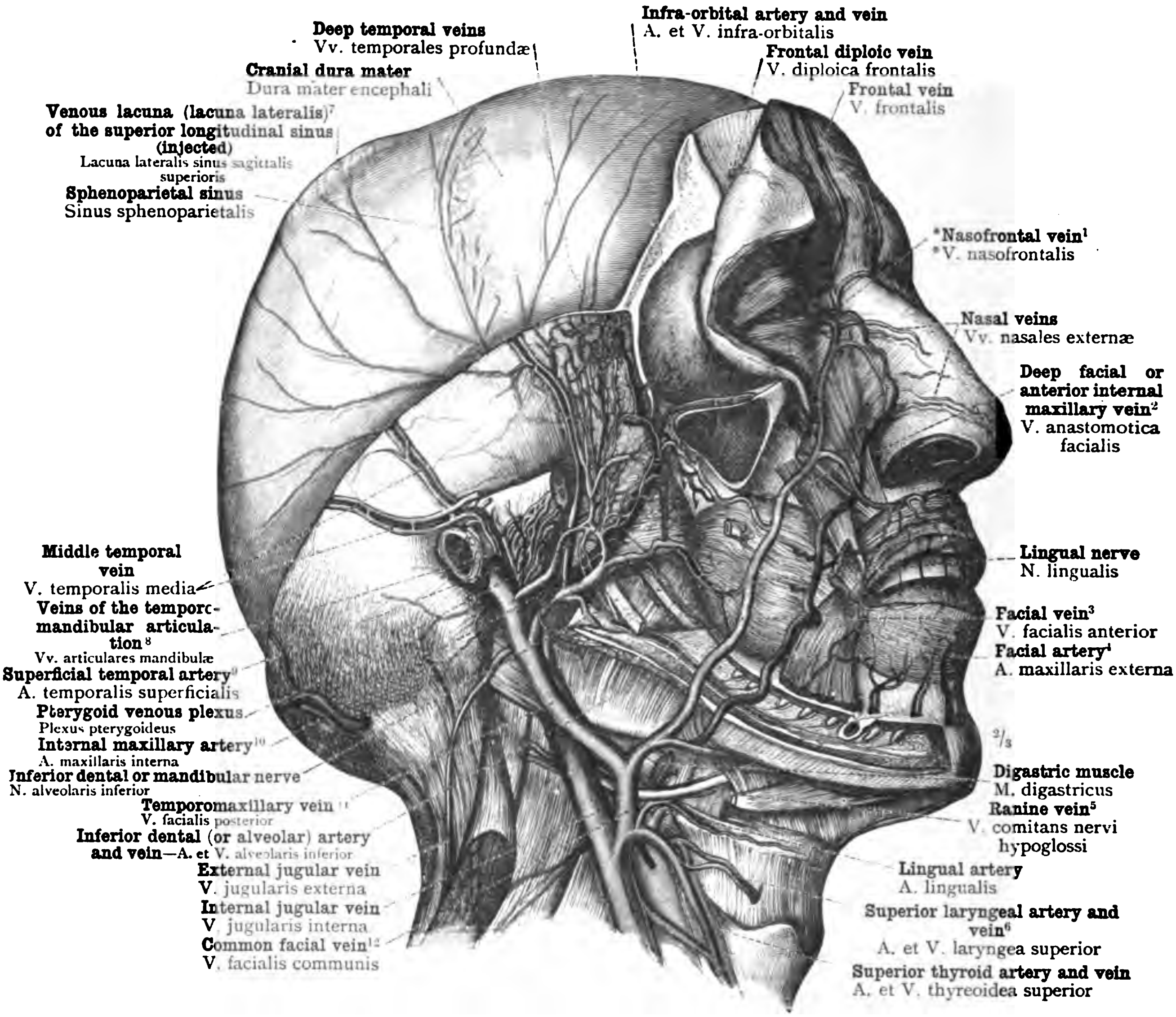
[1] See Appendix, note 184. [2] See Appendix, note 179. [3] See Appendix, note 292.

[4] Sometimes also known as the *transverse sinus*. See Appendix, note 230.

[5] A communicating branch between the *superior ophthalmic vein* and the *middle cerebral* or *superficial Sylvian vein*, which in this specimen, however, opens posteriorly into the *sphenoparietal sinus*.

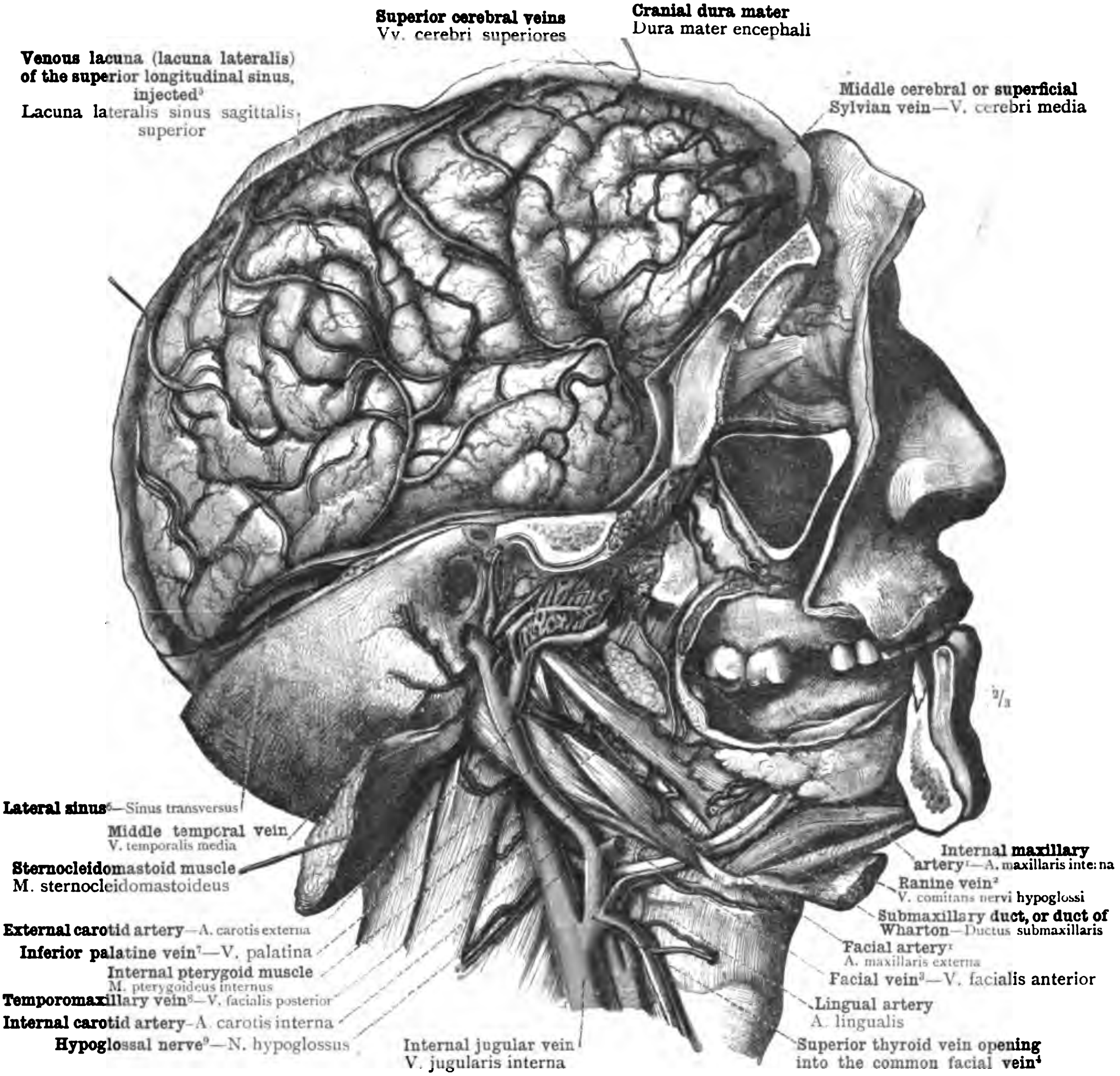


[1] See Appendix, note ^{282}.
[2] This vein is a communicating branch from the *pterygoid venous plexus*.
[3] Sometimes distinguished as the *anterior facial vein*. See Appendix, note ^{283}.
[4] See Appendix, note ^{166}.
[5] See Appendix, note ^{286}.
[6] Or *laryngeal branch* of the *superior thyroid artery* and *vein*, respectively.
[7] See Appendix, note ^{293}.
[8] See Appendix, note ^{287}.
[9] See Appendix, note ^{168}.
[10] See Appendix, note ^{166}.
[11] Sometimes called the *posterior facial vein*. See Appendix, note ^{283}.
[12] See Appendix, note ^{283}.

FIG. 1083.—THE FORMATION OF THE COMMON FACIAL VEIN, VENA FACIALIS COMMUNIS, BY THE CONFLUENCE OF THE FACIAL (OR ANTERIOR FACIAL) VEIN, VENA FACIALIS ANTERIOR, AND THE TEMPOROMAXILLARY (OR POSTERIOR FACIAL) VEIN, VENA FACIALIS POSTERIOR (*see Appendix, note* ^{283}). THE PTERYGOID VENOUS PLEXUS, PLEXUS PTERYGOIDEUS, THE VEINS OF THE LOWER JAW, AND THE VEINS OF THE DURA MATER—THE MIDDLE MENINGEAL VEINS, VENÆ MENINGEÆ MEDIÆ. SEEN FROM THE RIGHT SIDE.

By the partial removal of the skull-cap (calvaria), the cranial dura mater was exposed. By the removal of the zygomatic arch, of the upper half of the ramus of the mandible (with the exception of the head of the condyle), and of the temporal and masseter muscles, the pterygoid venous plexus, plexus pterygoideus, was exposed. By the opening of the mandibular or inferior dental canal, canalis mandibulæ, the inferior dental (or alveolar) artery and its plexiform companion veins were exposed.

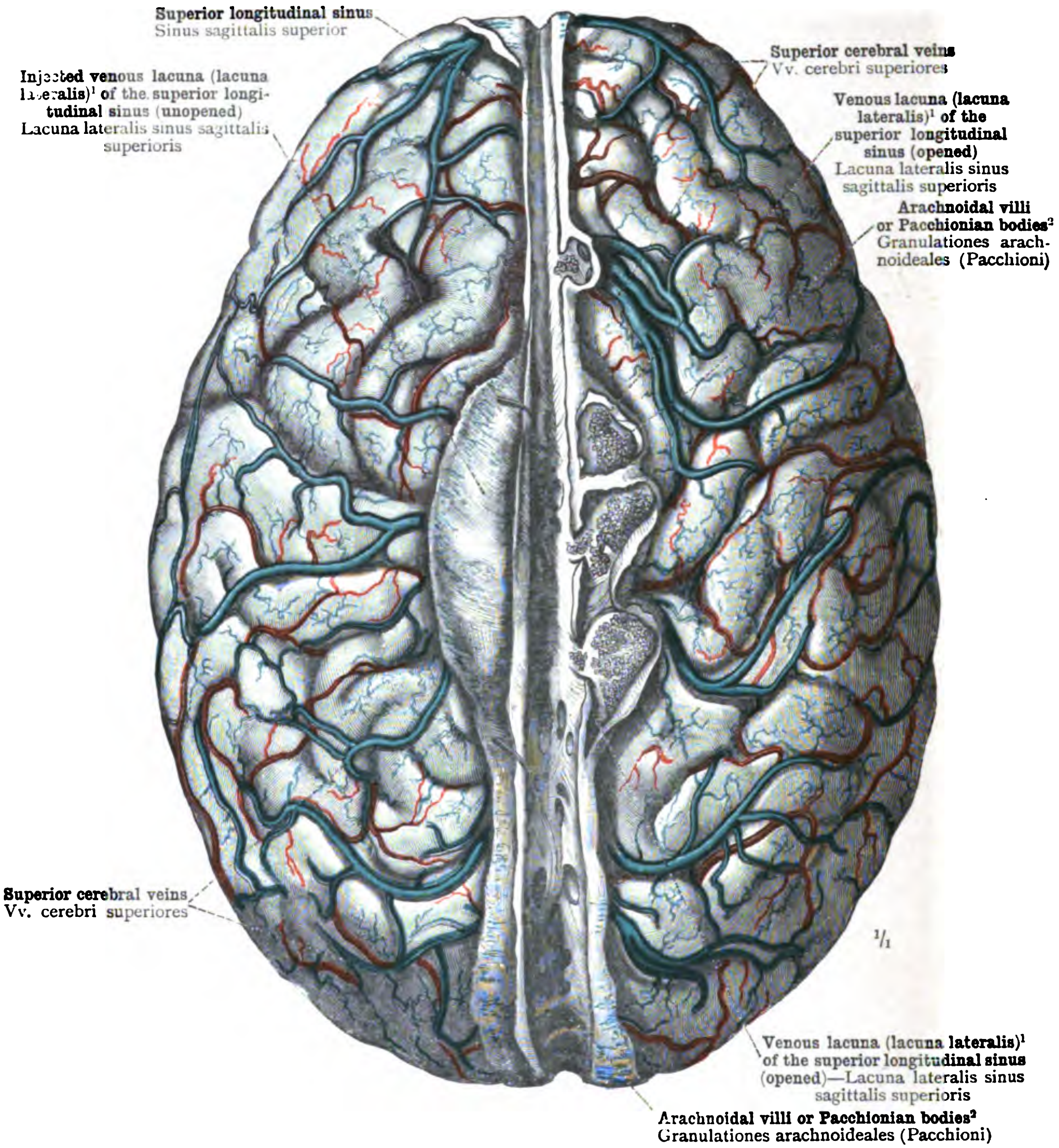
The Pterygoid Venous Plexus, Plexus Pterygoideus.—The Veins of the Dura Mater and of the Lower Jaw.


Superior cerebral veins
Vv. cerebri superiores
Cranial dura mater
Dura mater encephali
Venous lacuna (lacuna lateralis) of the superior longitudinal sinus, injected[5]
Lacuna lateralis sinus sagittalis superior
Middle cerebral or superficial Sylvian vein—V. cerebri media
2/3
Lateral sinus[6]—Sinus transversus
Middle temporal vein
V. temporalis media
Sternocleidomastoid muscle
M. sternocleidomastoideus
External carotid artery—A. carotis externa
Inferior palatine vein[7]—V. palatina
Internal pterygoid muscle
M. pterygoideus internus
Temporomaxillary vein[8]—V. facialis posterior
Internal carotid artery—A. carotis interna
Hypoglossal nerve[9]—N. hypoglossus
Internal jugular vein
V. jugularis interna
Internal maxillary artery[1]—A. maxillaris interna
Ranine vein[2]
V. comitans nervi hypoglossi
Submaxillary duct, or duct of Wharton—Ductus submaxillaris
Facial artery[1]
A. maxillaris externa
Facial vein[3]—V. facialis anterior
Lingual artery
A. lingualis
Superior thyroid vein opening into the common facial vein[4]

[1] See Appendix, note 166. [2] See Appendix, note 276. [3] Sometimes distinguished as the *anterior facial vein*. See Appendix, note 283.
[4] See Appendix, note 294. [5] See Appendix, note 293. [6] See Appendix, note 264. [7] See Appendix, note 295.
[8] Sometimes called the *posterior facial vein*. See Appendix, note 283.
[9] Or *twelfth cranial nerve*, in Soemmerring's enumeration; *ninth cranial nerve*, in that of Willis. Sometimes also called the *lingual motor nerve*.

FIG. 1084.—THE VEINS OF THE CONVEXITY OF THE CEREBRAL HEMISPHERES, SUPERIOR CEREBRAL VEINS, VENÆ CEREBRI SUPERIORES, AND THEIR TERMINATION IN THE SUPERIOR LONGITUDINAL SINUS; THE MIDDLE CEREBRAL OR SUPERFICIAL SYLVIAN VEIN, VENA CEREBRI MEDIA. IN THIS SPECIMEN, THE INTERNAL MAXILLARY ARTERY RUNS ON THE OUTER INSTEAD OF ON THE INNER SURFACE OF THE EXTERNAL PTERYGOID MUSCLE, SURROUNDED BY THE DEEPER PORTION OF THE PTERYGOID VENOUS PLEXUS, PLEXUS PTERYGOIDEUS, AND THIS LATTER, ON ACCOUNT OF THE ABNORMAL COURSE OF THE ARTERY, IS MORE LARGELY DEVELOPED THAN USUAL. SEEN FROM THE RIGHT SIDE.

The skull-cap (calvaria) and the cranial dura mater having been completely removed, the veins on the convexity of the right cerebral hemisphere were exposed, and were traced to their termination in the venous lacunæ (lacunæ laterales) of the superior longitudinal sinus (*see Appendix, note* 293). The right half of the mandible was removed, the inter-articular disc being, however, left behind. A portion of the upper head only of the external pterygoid muscle was preserved, as also was the cranial extremity of the internal pterygoid muscle.


Superior longitudinal sinus
Sinus sagittalis superior
Injected venous lacuna (lacuna lateralis)[1] of the superior longitudinal sinus (unopened)
Lacuna lateralis sinus sagittalis superioris
Superior cerebral veins
Vv. cerebri superiores
Venous lacuna (lacuna lateralis)[1] of the superior longitudinal sinus (opened)
Lacuna lateralis sinus sagittalis superioris
Arachnoidal villi or Pacchionian bodies[2]
Granulationes arachnoideales (Pacchioni)
Superior cerebral veins
Vv. cerebri superiores
1/1
Venous lacuna (lacuna lateralis)[1] of the superior longitudinal sinus (opened)—Lacuna lateralis sinus sagittalis superioris
Arachnoidal villi or Pacchionian bodies[2]
Granulationes arachnoideales (Pacchioni)

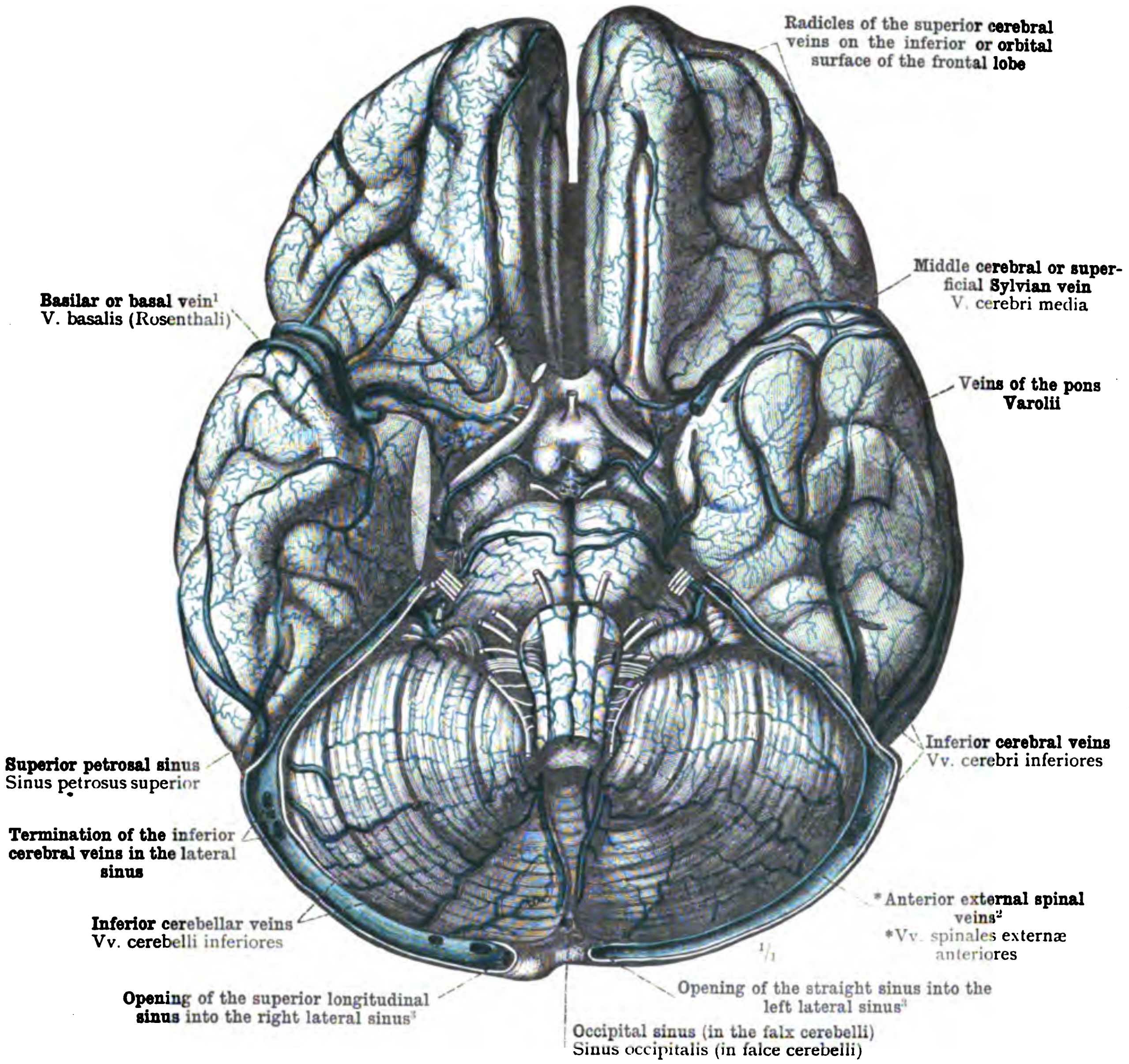
[1] See Appendix, note 293.

[2] See Appendix, note 296.

FIG. 1085.—THE SUPERIOR CEREBRAL VEINS, VENÆ CEREBRI SUPERIORES. THE SUPERIOR LONGITUDINAL SINUS, SINUS SAGITTALIS SUPERIOR; ITS VENOUS LACUNÆ (LACUNÆ LATERALES—*see Appendix, note* 293), AND THE RELATIONS OF THE LATTER TO THE SUPERIOR CEREBRAL VEINS AND TO THE ARACHNOIDAL VILLI OR PACCHIONIAN BODIES (GRANULATIONES ARACHNOIDEALES PACCHIONI—*see Appendix, note* 296). SEEN FROM ABOVE.

The cranial dura mater was removed, except in the immediate vicinity of the superior longitudinal sinus (sinus sagittalis superior), which was opened. On the left side the injected venous lacunæ (lacunæ laterales) of this sinus are seen unopened; on the right side these lacunæ were opened from above, and the arachnoidal villi or Pacchionian bodies proliferating in their interior were thus displayed.

Veins of the Brain.


Radicles of the superior cerebral veins on the inferior or orbital surface of the frontal lobe
Basilar or basal vein[1]
V. basalis (Rosenthali)
Middle cerebral or superficial Sylvian vein
V. cerebri media
Veins of the pons Varolii
Inferior cerebral veins
Vv. cerebri inferiores
Superior petrosal sinus
Sinus petrosus superior
Termination of the inferior cerebral veins in the lateral sinus
*Anterior external spinal veins[2]
*Vv. spinales externæ anteriores
Inferior cerebellar veins
Vv. cerebelli inferiores
1/1
Opening of the straight sinus into the left lateral sinus[3]
Opening of the superior longitudinal sinus into the right lateral sinus[3]
Occipital sinus (in the falx cerebelli)
Sinus occipitalis (in falce cerebelli)

[1] See Appendix, note 297.

[2] See Appendix, note 298.

[3] See Appendix, notes 264 and 266.

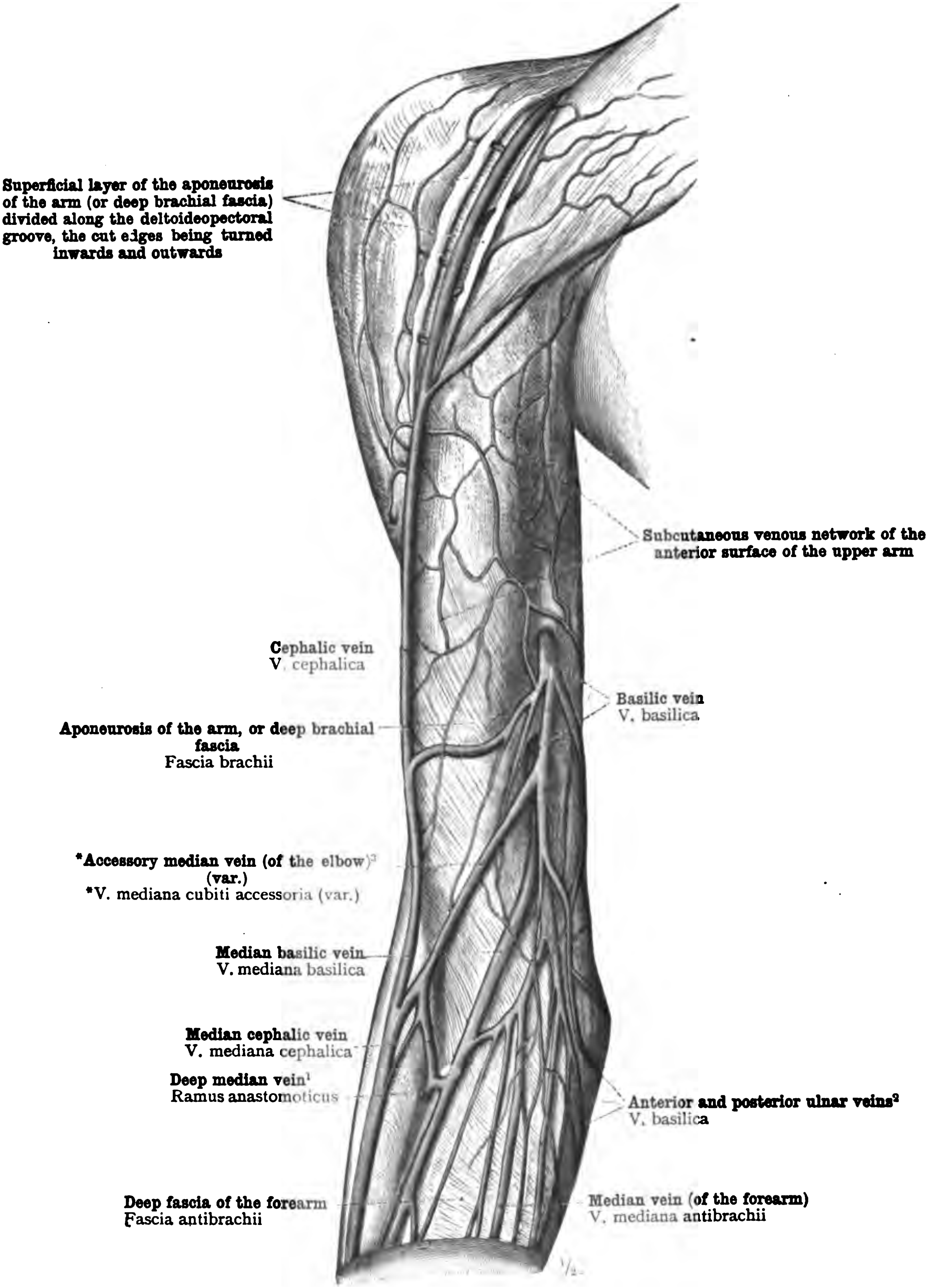
FIG. 1086.—THE VEINS OF THE BASE OF THE BRAIN: THE MIDDLE CEREBRAL OR SUPERFICIAL SYLVIAN VEIN, VENA CEREBRI MEDIA; THE INFERIOR CEREBRAL VEINS, VENÆ CEREBRI INFERIORES; THE RADICLES AND THE TRUNK OF THE BASILAR OR BASAL VEIN, VENA BASALIS ROSENTHALI (*see Appendix, note* 297); THE VEINS OF THE PONS VAROLII, AND THE INFERIOR CEREBELLAR VEINS, VENÆ CEREBELLI INFERIORES.

The brain was removed from the cranial cavity, together with the tentorium cerebelli, so that along the attached borders of the tentorium the lateral sinuses and the inferior petrosal sinuses were opened from below. The frontal lobes were drawn a little apart, in order to display the veins on their internal or mesial surfaces. The right temporal lobe was drawn away from the cerebral peduncle, and a sufficient portion of this lobe was removed to expose the trunk of the basilar or basal vein (vena basalis Rosenthali).

Veins of the Brain.

VENÆ EXTREMITATUM SUPERIORUM ET INFERIORUM

THE VEINS OF THE UPPER AND LOWER LIMBS


Superficial layer of the aponeurosis of the arm (or deep brachial fascia) divided along the deltoideopectoral groove, the cut edges being turned inwards and outwards
Subcutaneous venous network of the anterior surface of the upper arm
Cephalic vein
V. cephalica
Basilic vein
V. basilica
Aponeurosis of the arm, or deep brachial fascia
Fascia brachii
*Accessory median vein (of the elbow)[3] (var.)
*V. mediana cubiti accessoria (var.)
Median basilic vein
V. mediana basilica
Median cephalic vein
V. mediana cephalica
Deep median vein[1]
Ramus anastomoticus
Anterior and posterior ulnar veins[2]
V. basilica
Deep fascia of the forearm
Fascia antibrachii
Median vein (of the forearm)
V. mediana antibrachii
1/2

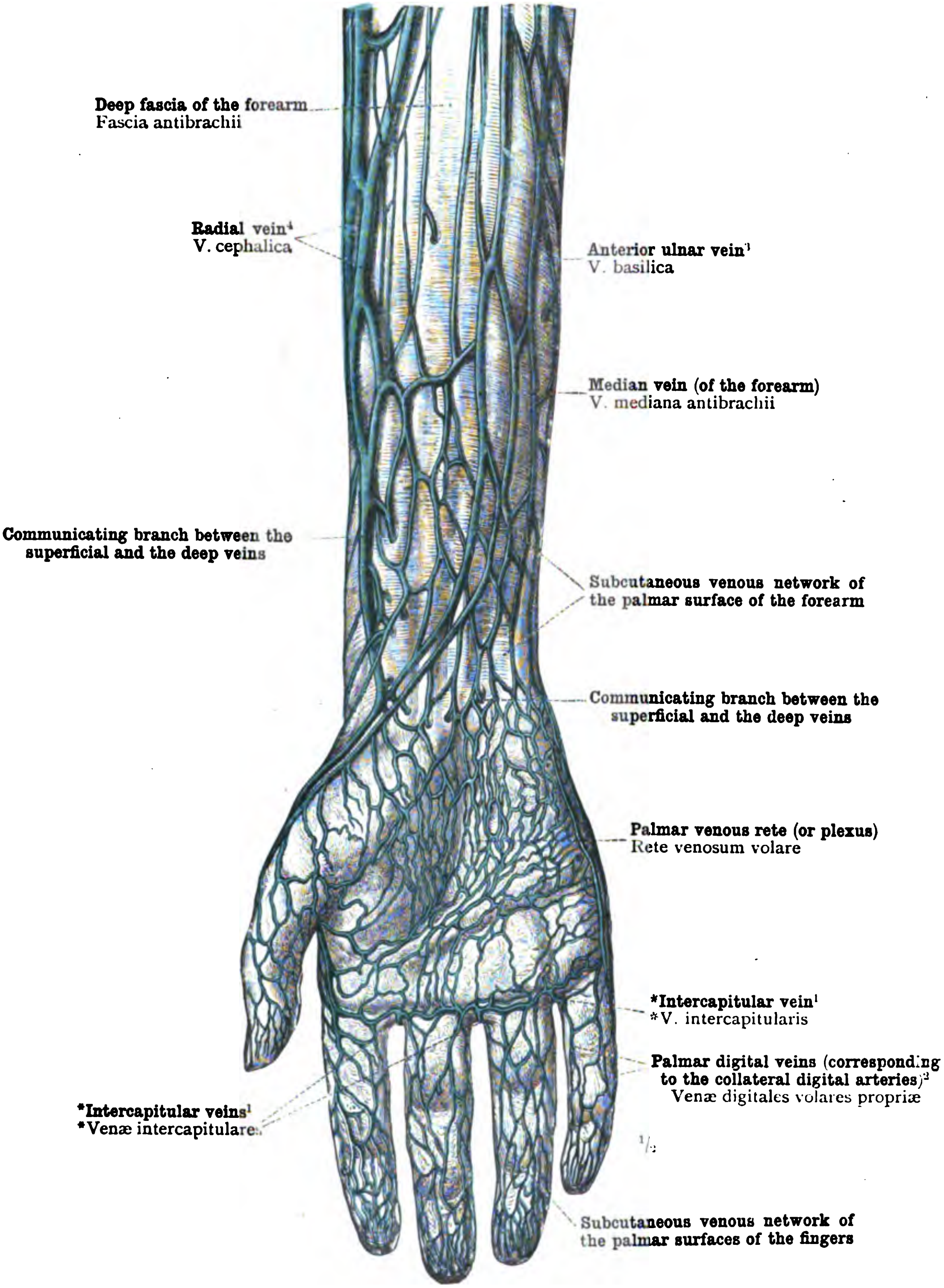
[1] See Appendix, note 299.

[2] Called by Macalister *anterior* and *posterior superficial ulnar veins*. See Appendix, note 306.

[3] See Appendix, note 308.

FIG. 1087.—THE SUBCUTANEOUS VEINS OF THE FRONT OF THE SHOULDER, THE FRONT OF THE ARM, AND THE FLEXURE OF THE ELBOW.

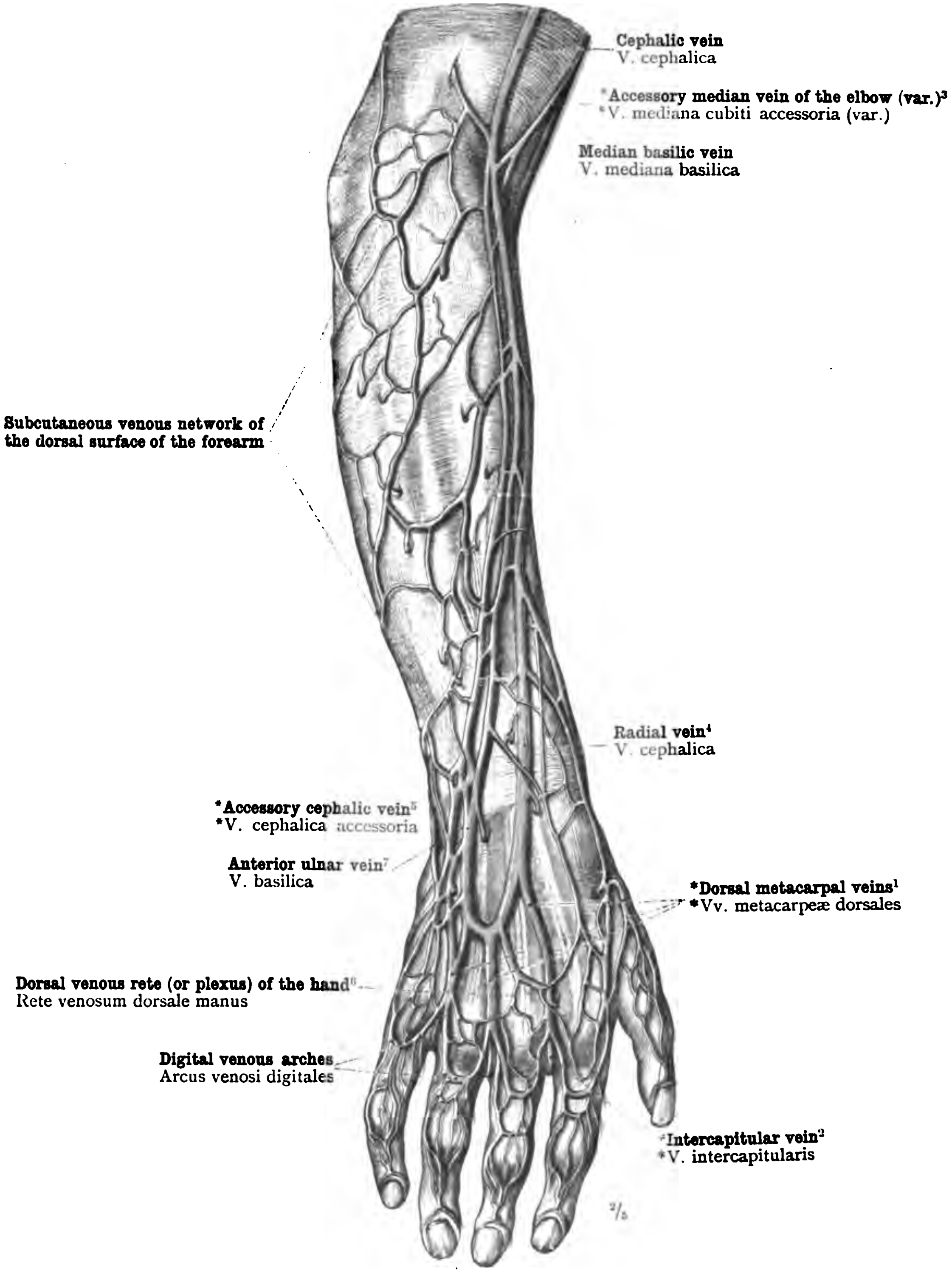
Cutaneous Veins of the Arm.


Deep fascia of the forearm
Fascia antibrachii
Radial vein[4]
V. cephalica
Anterior ulnar vein[3]
V. basilica
Median vein (of the forearm)
V. mediana antibrachii
Communicating branch between the superficial and the deep veins
Subcutaneous venous network of the palmar surface of the forearm
Communicating branch between the superficial and the deep veins
Palmar venous rete (or plexus)
Rete venosum volare
*Intercapitular vein[1]
*V. intercapitularis
Palmar digital veins (corresponding to the collateral digital arteries)[2]
Venæ digitales volares propriæ
*Intercapitular veins[1]
*Venæ intercapitulares
1/2
Subcutaneous venous network of the palmar surfaces of the fingers

[1] See Appendix, note 300.
[3] Called by Macalister the ***anterior superficial ulnar vein*** See Appendix, note 306.
[2] See Appendix, note 301.
[4] See Appendix, note 305.

FIG. 1088.—THE SUBCUTANEOUS VEINS OF THE PALMAR SURFACE OF THE FOREARM AND HAND.

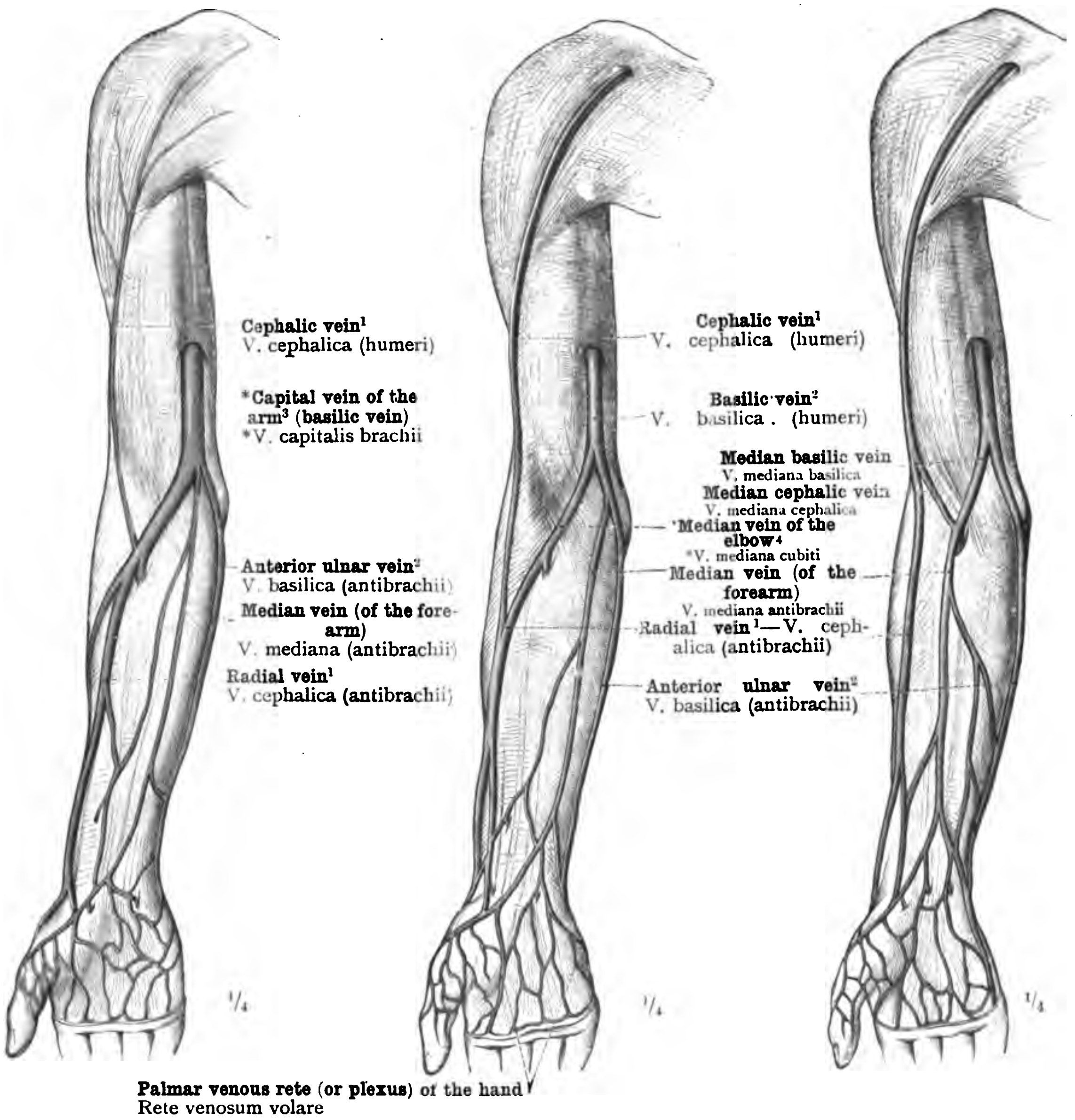
Cutaneous Veins of the Arm.


Cephalic vein
V. cephalica
***Accessory median vein of the elbow (var.)**[3]
*V. mediana cubiti accessoria (var.)
Median basilic vein
V. mediana basilica
Subcutaneous venous network of the dorsal surface of the forearm
Radial vein[4]
V. cephalica
***Accessory cephalic vein**[5]
*V. cephalica accessoria
Anterior ulnar vein[7]
V. basilica
***Dorsal metacarpal veins**[1]
*Vv. metacarpeæ dorsales
Dorsal venous rete (or plexus) of the hand[6]
Rete venosum dorsale manus
Digital venous arches
Arcus venosi digitales
***Intercapitular vein**[2]
*V. intercapitularis
2/5

[1] See Appendix, note 302.
[2] See Appendix, note 300.
[3] See Appendix, note 308.
[4] See Appendix, note 305.
[5] See Appendix, note 303.
[6] See Appendix, note 304.
[7] Called by Macalister the *anterior superficial ulnar vein.* See Appendix, note 306.

FIG. 1089.—THE SUBCUTANEOUS VEINS OF THE DORSAL SURFACE OF THE FOREARM AND HAND.

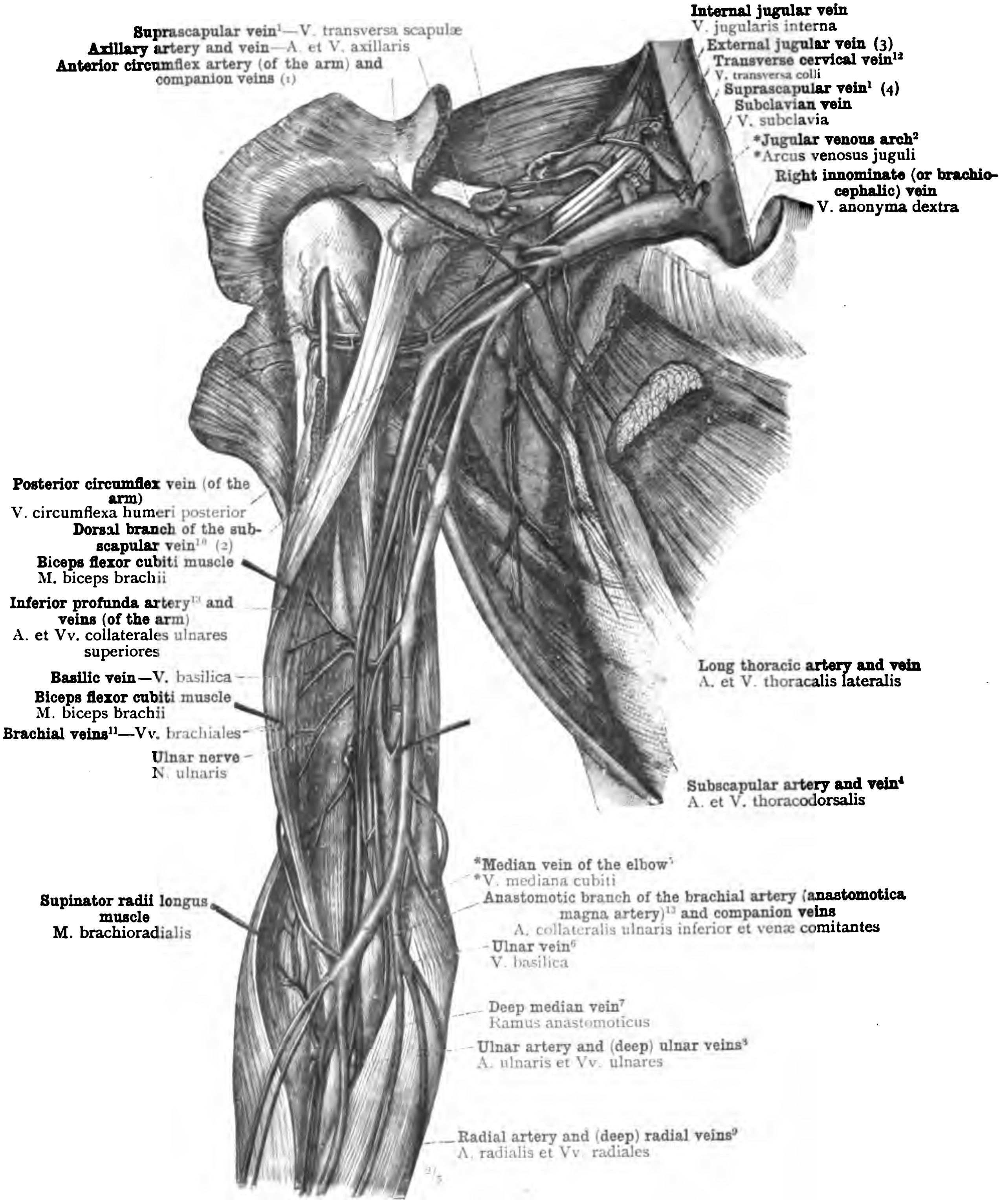
Cutaneous Veins of the Arm.


Cephalic vein[1]
V. cephalica (humeri)
***Capital vein of the arm**[3] **(basilic vein)**
*V. capitalis brachii
Anterior ulnar vein[2]
V. basilica (antibrachii)
Median vein (of the fore-arm)
V. mediana (antibrachii)
Radial vein[1]
V. cephalica (antibrachii)
Cephalic vein[1]
V. cephalica (humeri)
Basilic vein[2]
V. basilica . (humeri)
Median basilic vein
V. mediana basilica
Median cephalic vein
V. mediana cephalica
***Median vein of the elbow**[4]
*V. mediana cubiti
Median vein (of the forearm)
V. mediana antibrachii
Radial vein[1]—V. cephalica (antibrachii)
Anterior ulnar vein[2]
V. basilica (antibrachii)
1/4
1/4
1/4
Palmar venous rete (or plexus) of the hand
Rete venosum volare

[1] See Appendix, note 305. [2] See Appendix, note 306. [3] See Appendix, note 307. [4] See Appendix, note 308.

FIG. 1090.—THE COMMONER VARIETIES OF THE SUBCUTANEOUS VEINS OF THE ARM (*see Appendix, notes* 307 *and* 308). THE *CAPITAL VEIN OF THE ARM, *VENA CAPITALIS BRACHII (*K. von Bardeleben*), AND ITS COLLATERAL CHANNELS.

Cutaneous Veins of the Arm.


Suprascapular vein[1]—V. transversa scapulæ
Axillary artery and vein—A. et V. axillaris
Anterior circumflex artery (of the arm) and companion veins (1)
Internal jugular vein
V. jugularis interna
External jugular vein (3)
Transverse cervical vein[12]
V. transversa colli
Suprascapular vein[1] (4)
Subclavian vein
V. subclavia
*Jugular venous arch[2]
*Arcus venosus juguli
Right innominate (or brachiocephalic) vein
V. anonyma dextra
Posterior circumflex vein (of the arm)
V. circumflexa humeri posterior
Dorsal branch of the subscapular vein[10] (2)
Biceps flexor cubiti muscle
M. biceps brachii
Inferior profunda artery[13] and veins (of the arm)
A. et Vv. collaterales ulnares superiores
Basilic vein—V. basilica
Biceps flexor cubiti muscle
M. biceps brachii
Brachial veins[11]—Vv. brachiales
Ulnar nerve
N. ulnaris
Long thoracic artery and vein
A. et V. thoracalis lateralis
Subscapular artery and vein[4]
A. et V. thoracodorsalis
*Median vein of the elbow[5]
*V. mediana cubiti
Anastomotic branch of the brachial artery (anastomotica magna artery)[13] and companion veins
A. collateralis ulnaris inferior et venæ comitantes
Ulnar vein[6]
V. basilica
Supinator radii longus muscle
M. brachioradialis
Deep median vein[7]
Ramus anastomoticus
Ulnar artery and (deep) ulnar veins[8]
A. ulnaris et Vv. ulnares
Radial artery and (deep) radial veins[9]
A. radialis et Vv. radiales
2/3

(1) A. circumflexa humeri anterior et venæ comitantes (2) V. circumflexa scapulæ (3) V. jugularis externa (4) V. transversa scapulæ

FIG. 1091.—THE DEEP VEINS AND ARTERIES OF THE (*GREATER) SUPRACLAVICULAR FOSSA (*see Appendix*, *note* 280), *FOSSA SUPRACLAVICULARIS MAJOR, OF THE AXILLA, AND OF THE FRONT OF THE UPPER ARM; THE CONNEXION BETWEEN THE SUPERFICIAL AND THE DEEP VEINS OF THE FLEXURE OF THE ELBOW.

Deep Veins of the Axilla and the Upper Arm.

[1] Known also as the *transverse scapular* or *transverse humeral vein*.

[2] See Appendix, note 123.

[3] Known also as the *external mammary artery* and *vein*.

[4] See Appendix, note 309.

[5] See Appendix, note 308.

[6] See Appendix, note 310.

[7] See Appendix, note 311.

[8] Or *venæ comites of the ulnar artery*.

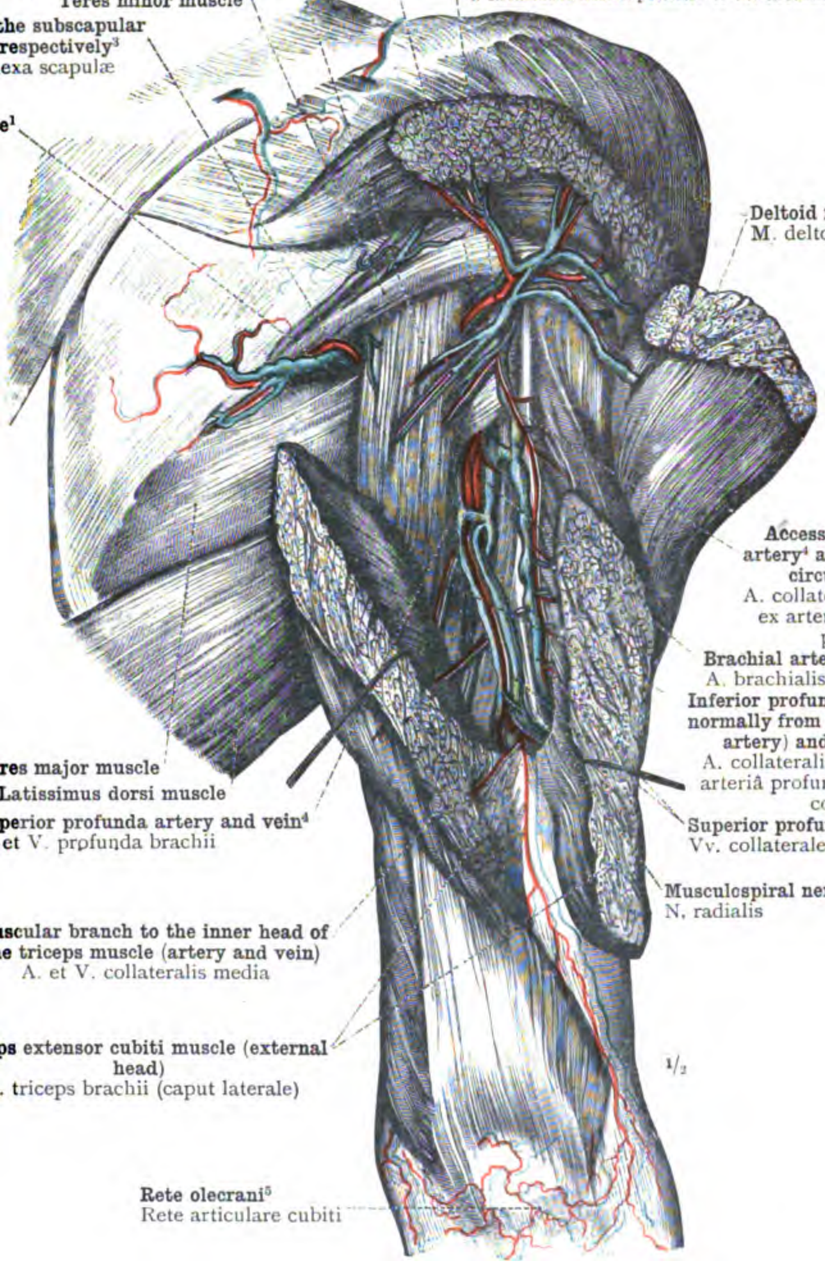
[9] Or *venæ comites of the radial artery*.

[10] Often called the *dorsalis scapulæ vein*.

[11] Or *venæ comites of the brachial artery*.

[12] See Appendix, note 262.

[13] See Appendix, note 209.


Triceps extensor cubiti muscle (middle or long head)—M. triceps brachii (caput longum)
Teres minor muscle
Dorsal branches of the subscapular artery and vein, respectively[3]
A. et V. circumflexa scapulæ
*Internal axillary space[1]
*External axillary space[1]
Posterior circumflex artery and veins (of the arm)
A. circumflexa humeri posterior et Vv. circumflexæ humeri posteriores
Deltoid muscle
M. deltoideus
Accessory superior profunda artery[4] arising from the posterior circumflex artery (var.)
A. collateralis radialis accessoria ex arteriâ circumflexâ humeri posteriore (var.)
Brachial artery and brachial veins[2]
A. brachialis et Vv. brachiales
Inferior profunda artery (arising abnormally from the superior profunda artery) and companion veins
A. collateralis ulnaris superior ex arteriâ profundâ brachiâ et venæ comitantes
Superior profunda veins
Vv. collaterales radiales
Musculospiral nerve
N. radialis
Teres major muscle
Latissimus dorsi muscle
Superior profunda artery and vein[4]
A. et V. profunda brachii
Muscular branch to the inner head of the triceps muscle (artery and vein)
A. et V. collateralis media
Triceps extensor cubiti muscle (external head)
M. triceps brachii (caput laterale)
1/2
Rete olecrani[5]
Rete articulare cubiti

---

[1] ***Internal and *External Axillary Spaces.**—For an account of these, see note [1] to p. 312, in Part III. The **internal axillary space* is called by Macalister the *subscapular triangle*, and the **external axillary space* is called by Macalister the *quadrilateral space*.—Tr.

[2] Or *venæ comites of the brachial artery.*

[3] Known also as the *dorsalis scapulæ artery* and *vein*, respectively.

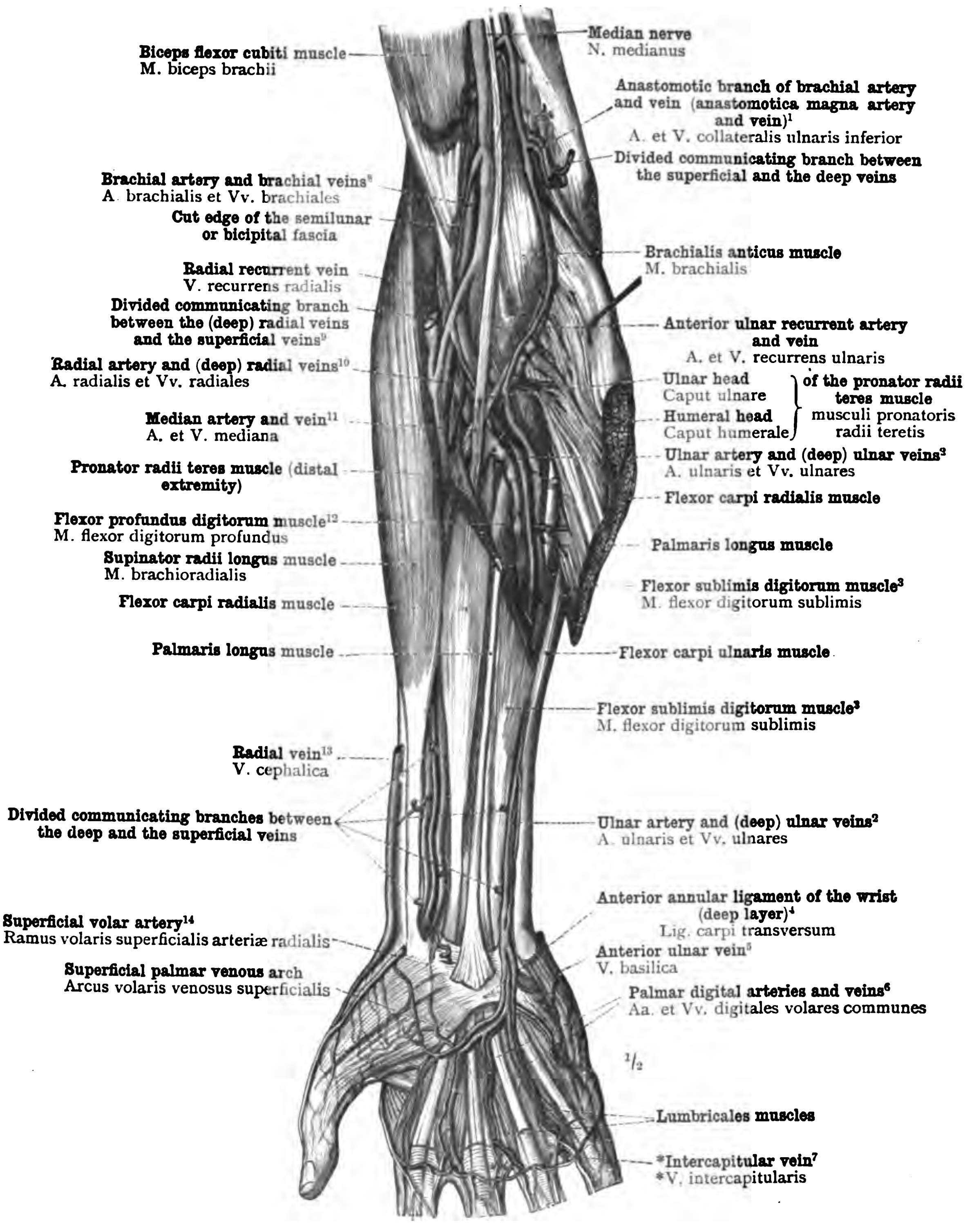
[4] See Appendix, note 209.

[5] See Appendix, note 212.

FIG. 1092.—THE DEEP VEINS AND ARTERIES OF THE DORSAL SURFACE OF THE RIGHT SHOULDER AND UPPER ARM; SEEN FROM BEHIND.

A horizontal incision was made through the hinder part of the deltoid muscle somewhat above the middle of its vertical extent, the margins of the incision were turned upwards and downwards, and the teres minor muscle was drawn a little upwards, in order to expose the vessels passing through the *axillary spaces (*see note* [1] *above*). The external head of the triceps extensor cubiti muscle was divided by a longitudinal incision, and the segments were drawn apart, in order to expose the ramification of the superior profunda vessels.

Deep Veins of the Shoulder and the Upper Arm.


Biceps flexor cubiti muscle
M. biceps brachii
Median nerve
N. medianus
Anastomotic branch of brachial artery and vein (**anastomotica magna artery and vein**)[1]
A. et V. collateralis ulnaris inferior
Divided communicating branch between the superficial and the deep veins
Brachial artery and brachial veins[8]
A. brachialis et Vv. brachiales
Cut edge of the semilunar **or bicipital** fascia
Radial recurrent vein
V. recurrens radialis
Divided communicating branch **between the (deep) radial** veins **and the superficial** veins[9]
Brachialis anticus muscle
M. brachialis
Anterior ulnar recurrent artery and vein
A. et V. recurrens ulnaris
Radial artery and (deep) radial veins[10]
A. radialis et Vv. radiales
Ulnar head
Caput ulnare
Humeral head
Caput humerale
of the pronator radii teres muscle
musculi pronatoris radii teretis
Median artery and vein[11]
A. et V. mediana
Ulnar artery and (deep) ulnar veins[3]
A. ulnaris et Vv. ulnares
Pronator radii teres muscle (distal **extremity)**
Flexor carpi radialis muscle
Flexor profundus digitorum muscle[12]
M. flexor digitorum profundus
Palmaris longus muscle
Supinator radii longus muscle
M. brachioradialis
Flexor sublimis digitorum muscle[3]
M. flexor digitorum sublimis
Flexor carpi radialis muscle
Palmaris longus muscle
Flexor carpi ulnaris muscle
Flexor sublimis digitorum muscle[3]
M. flexor digitorum sublimis
Radial vein[13]
V. cephalica
Divided communicating branches between **the deep and the superficial** veins
Ulnar artery and (deep) ulnar veins[2]
A. ulnaris et Vv. ulnares
Anterior annular ligament of the wrist (deep layer)[4]
Lig. carpi transversum
Superficial volar artery[14]
Ramus volaris superficialis arteriæ radialis
Anterior ulnar vein[5]
V. basilica
Superficial palmar venous arch
Arcus volaris venosus superficialis
Palmar digital arteries and veins[6]
Aa. et Vv. digitales volares communes
1/2
Lumbricales muscles
*Intercapitular vein[7]
*V. intercapitularis

---

[1] See Appendix, note 209.

[2] Or *venæ comites of the ulnar artery*.

[3] Or *flexor perforatus* muscle.

[4] See Appendix, note 214.

[5] Or *anterior superficial ulnar vein*, according to Macalister. See Appendix, note 306.

[6] See Appendix, notes 213 and 301.

[7] See Appendix, note 310.

[8] Or *venæ comites of the brachial artery*.

[9] This probably represents the *deep median vein* of English anatomists.—Tr.

[10] Or *venæ comites of the radial artery*.

[11] Called by Macalister *comes nervi mediani artery* and *vein*.

[12] Or *flexor perforans* muscle.

[13] Or *superficial radial vein*, according to Macalister. See Appendix, note 305.

[14] Often known in England by the Latin name of *superficialis volæ artery*.

FIG. 1093.—THE DEEP VEINS AND ARTERIES OF THE FLEXURE OF THE ELBOW AND OF THE PALMAR SURFACE OF THE FOREARM; THE SUPERFICIAL PALMAR ARTERIAL AND VENOUS ARCHES.

Deep Veins of the Forearm and Hand.

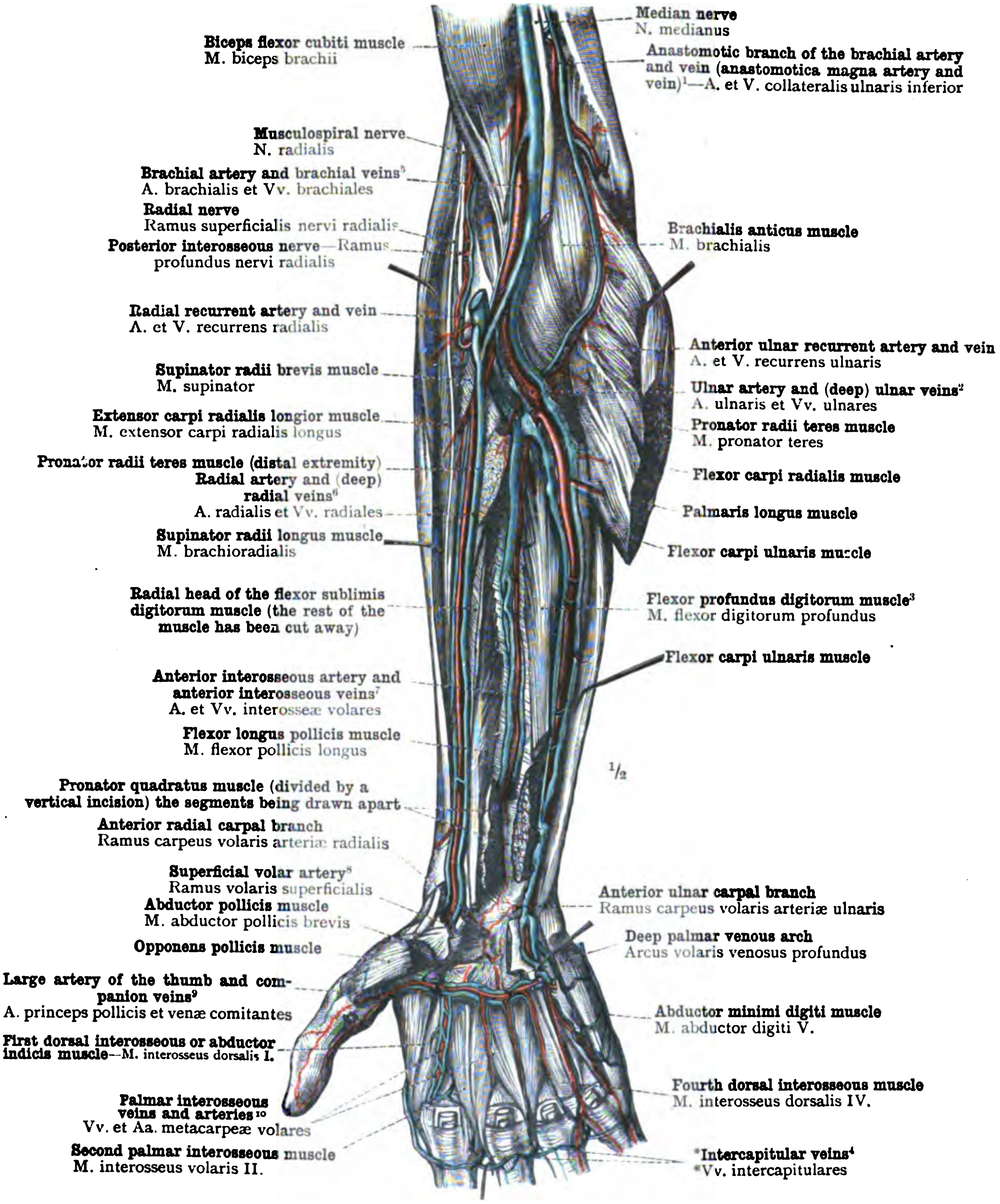

Biceps flexor cubiti muscle
M. biceps brachii
Median nerve
N. medianus
Anastomotic branch of the brachial artery and vein (anastomotica magna artery and vein)[1]—A. et V. collateralis ulnaris inferior
Musculospiral nerve
N. radialis
Brachial artery and brachial veins[5]
A. brachialis et Vv. brachiales
Radial nerve
Ramus superficialis nervi radialis
Posterior interosseous nerve—Ramus profundus nervi radialis
Brachialis anticus muscle
M. brachialis
Radial recurrent artery and vein
A. et V. recurrens radialis
Anterior ulnar recurrent artery and vein
A. et V. recurrens ulnaris
Supinator radii brevis muscle
M. supinator
Ulnar artery and (deep) ulnar veins[2]
A. ulnaris et Vv. ulnares
Extensor carpi radialis longior muscle
M. extensor carpi radialis longus
Pronator radii teres muscle
M. pronator teres
Pronator radii teres muscle (distal extremity)
Radial artery and (deep) radial veins[6]
A. radialis et Vv. radiales
Flexor carpi radialis muscle
Palmaris longus muscle
Supinator radii longus muscle
M. brachioradialis
Flexor carpi ulnaris muscle
Radial head of the flexor sublimis digitorum muscle (the rest of the muscle has been cut away)
Flexor profundus digitorum muscle[3]
M. flexor digitorum profundus
Flexor carpi ulnaris muscle
Anterior interosseous artery and anterior interosseous veins[7]
A. et Vv. interosseæ volares
Flexor longus pollicis muscle
M. flexor pollicis longus
1/2
Pronator quadratus muscle (divided by a vertical incision) the segments being drawn apart
Anterior radial carpal branch
Ramus carpeus volaris arteriæ radialis
Superficial volar artery[8]
Ramus volaris superficialis
Anterior ulnar carpal branch
Ramus carpeus volaris arteriæ ulnaris
Abductor pollicis muscle
M. abductor pollicis brevis
Deep palmar venous arch
Arcus volaris venosus profundus
Opponens pollicis muscle
Large artery of the thumb and companion veins[9]
A. princeps pollicis et venæ comitantes
Abductor minimi digiti muscle
M. abductor digiti V.
First dorsal interosseous or abductor indicis muscle—M. interosseus dorsalis I.
Fourth dorsal interosseous muscle
M. interosseus dorsalis IV.
Palmar interosseous veins and arteries[10]
Vv. et Aa. metacarpeæ volares
Second palmar interosseous muscle
M. interosseus volaris II.
*Intercapitular veins[4]
*Vv. intercapitulares

FIG. 1094.—THE DEEP VEINS AND ARTERIES OF THE FLEXURE OF THE ELBOW, AND THEIR CONNEXION WITH THE DEEP VEINS OF THE PALMAR SURFACE OF THE FOREARM ; THE DEEP PALMAR ARTERIAL AND VENOUS ARCHES.

Deep Veins of the Forearm and Hand.

---

[1] See Appendix, note 209.

[2] Or *venæ comites of the ulnar artery.*

[3] Or *flexor perforans* muscle.

[4] See Appendix, note 300.

[5] Or *venæ comites of the brachial artery.*

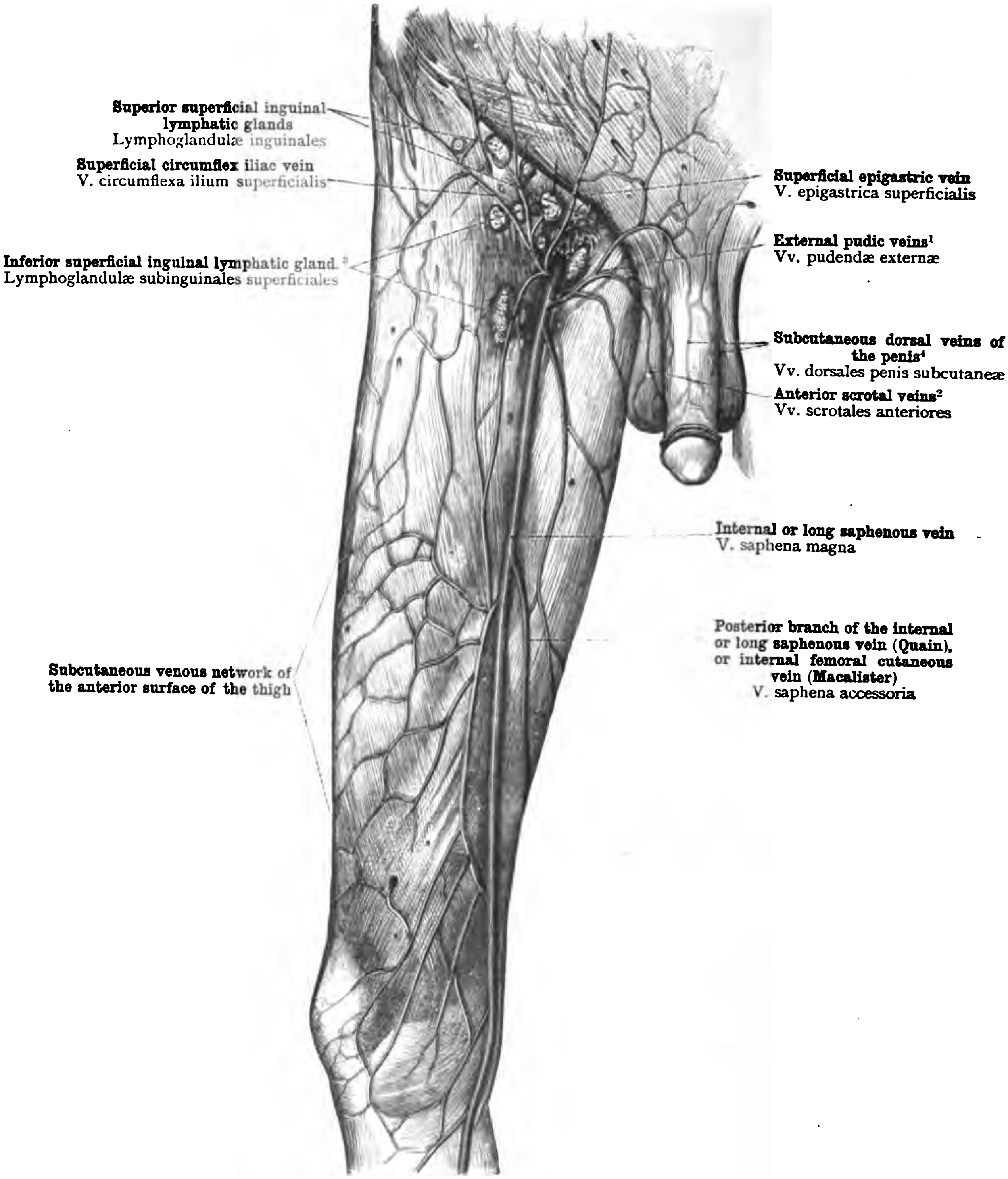
[6] Or *venæ comites of the radial artery.*

[7] Or *venæ comites of the anterior interosseous artery.*

[8] See note [14] to p. 700.

[9] Or *princeps pollicis artery* and *veins.*

[10] Called by Macalister the *descending digital branches* of the *deep palmar arch.*


Superior superficial inguinal lymphatic glands
Lymphoglandulæ inguinales
Superficial circumflex iliac vein
V. circumflexa ilium superficialis
Inferior superficial inguinal lymphatic gland.[3]
Lymphoglandulæ subinguinales superficiales
Subcutaneous venous network of the anterior surface of the thigh
Superficial epigastric vein
V. epigastrica superficialis
External pudic veins[1]
Vv. pudendæ externæ
Subcutaneous dorsal veins of the penis[4]
Vv. dorsales penis subcutaneæ
Anterior scrotal veins[2]
Vv. scrotales anteriores
Internal or long saphenous vein
V. saphena magna
Posterior branch of the internal or long saphenous vein (Quain), or internal femoral cutaneous vein (Macalister)
V. saphena accessoria

[1] According to Macalister, *pubic* tributaries of the internal or long saphenous vein.

[3] Often called the *femoral lymphatic glands*.

[2] See Appendix, note 138.

[4] See Appendix, note 274.

FIG. 1095.—THE CUTANEOUS VEINS OF THE ANTERIOR AND INNER SIDES OF THE RIGHT THIGH, OF THE LOWER PART OF THE FRONT OF THE ABDOMEN, AND OF THE MALE EXTERNAL GENITAL ORGANS. THE INTERNAL OR LONG SAPHENOUS VEIN WITH ITS POSTERIOR BRANCH (THE INTERNAL FEMORAL CUTANEOUS VEIN, ACCORDING TO MACALISTER), VENA SAPHENA MAGNA ET VENA SAPHENA ACCESSORIA; THE SUPERFICIAL LYMPHATIC GLANDS OF THE INGUINAL AND SUBINGUINAL REGIONS.

Cutaneous Veins of the Lower Limb.

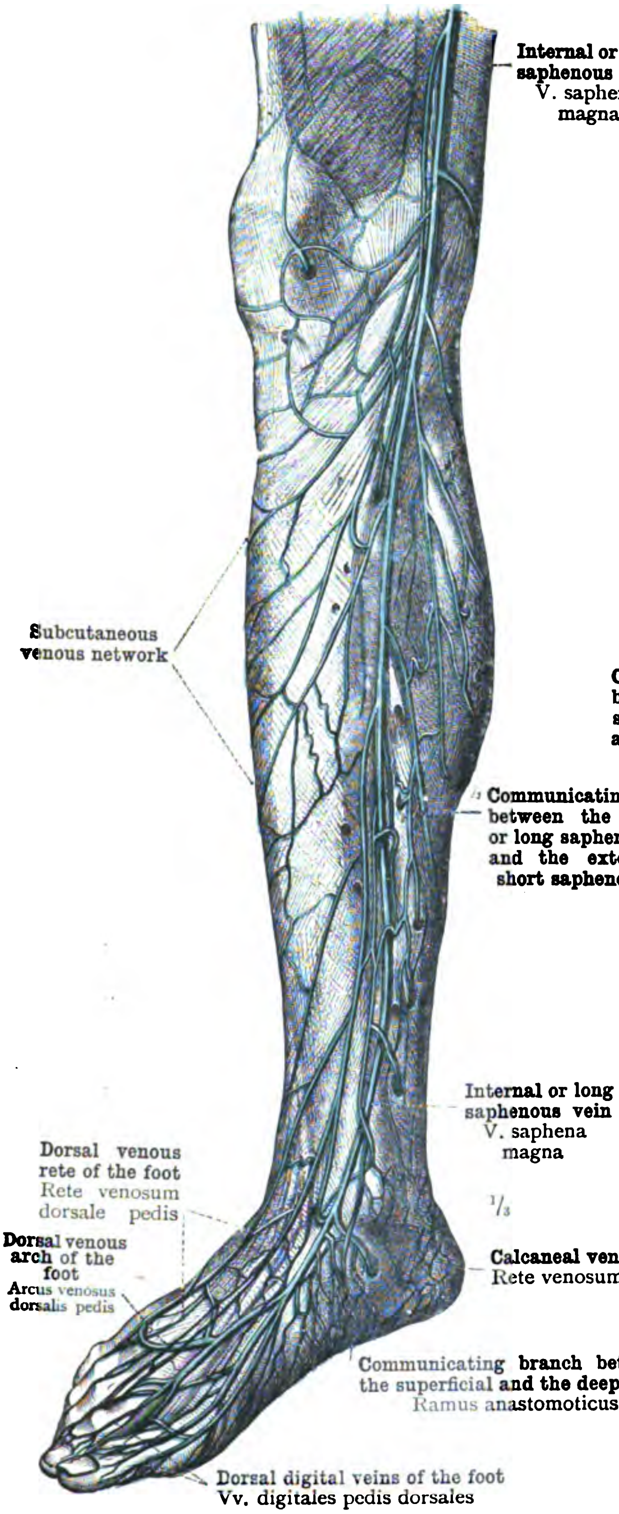

Internal or long saphenous vein
V. saphena magna
Subcutaneous venous network
Communicating branch between the internal or long saphenous vein and the external or short saphenous vein
Internal or long saphenous vein
V. saphena magna
Dorsal venous rete of the foot
Rete venosum dorsale pedis
Dorsal venous arch of the foot
Arcus venosus dorsalis pedis
1/3
Calcaneal venous rete
Rete venosum calcaneum
Communicating branch between the superficial and the deep veins
Ramus anastomoticus
Dorsal digital veins of the foot
Vv. digitales pedis dorsales

FIG. 1096.—SEEN FROM THE FRONT AND THE INNER SIDE.

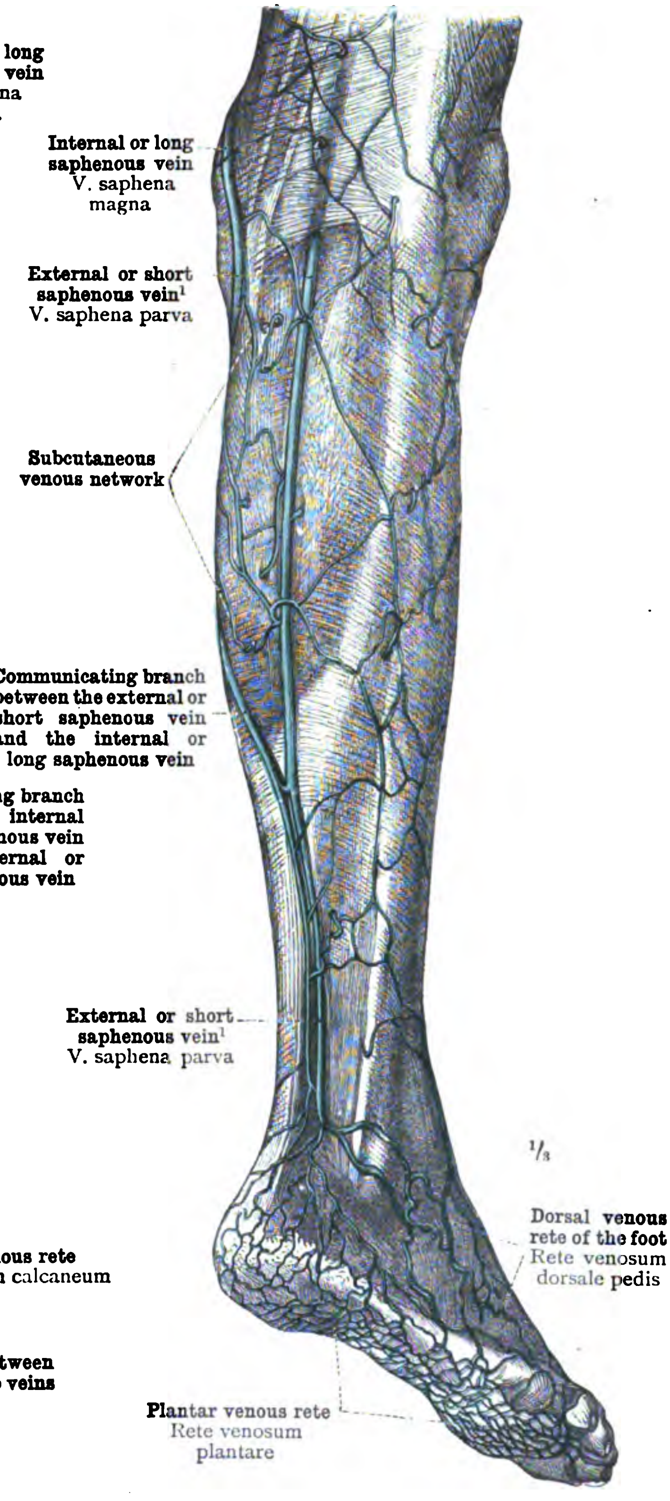

Internal or long saphenous vein
V. saphena magna
External or short saphenous vein[1]
V. saphena parva
Subcutaneous venous network
Communicating branch between the external or short saphenous vein and the internal or long saphenous vein
External or short saphenous vein[1]
V. saphena parva
1/3
Dorsal venous rete of the foot
Rete venosum dorsale pedis
Plantar venous rete
Rete venosum plantare

FIG. 1097.—SEEN FROM BEHIND AND THE OUTER SIDE.

THE CUTANEOUS VEINS OF THE LEG AND THE FOOT: THE INTERNAL OR LONG SAPHENOUS VEIN, VENA SAPHENA MAGNA, AND THE EXTERNAL OR SHORT SAPHENOUS VEIN, VENA SAPHENA PARVA, WITH THE TRIBUTARIES OF THESE VEINS.

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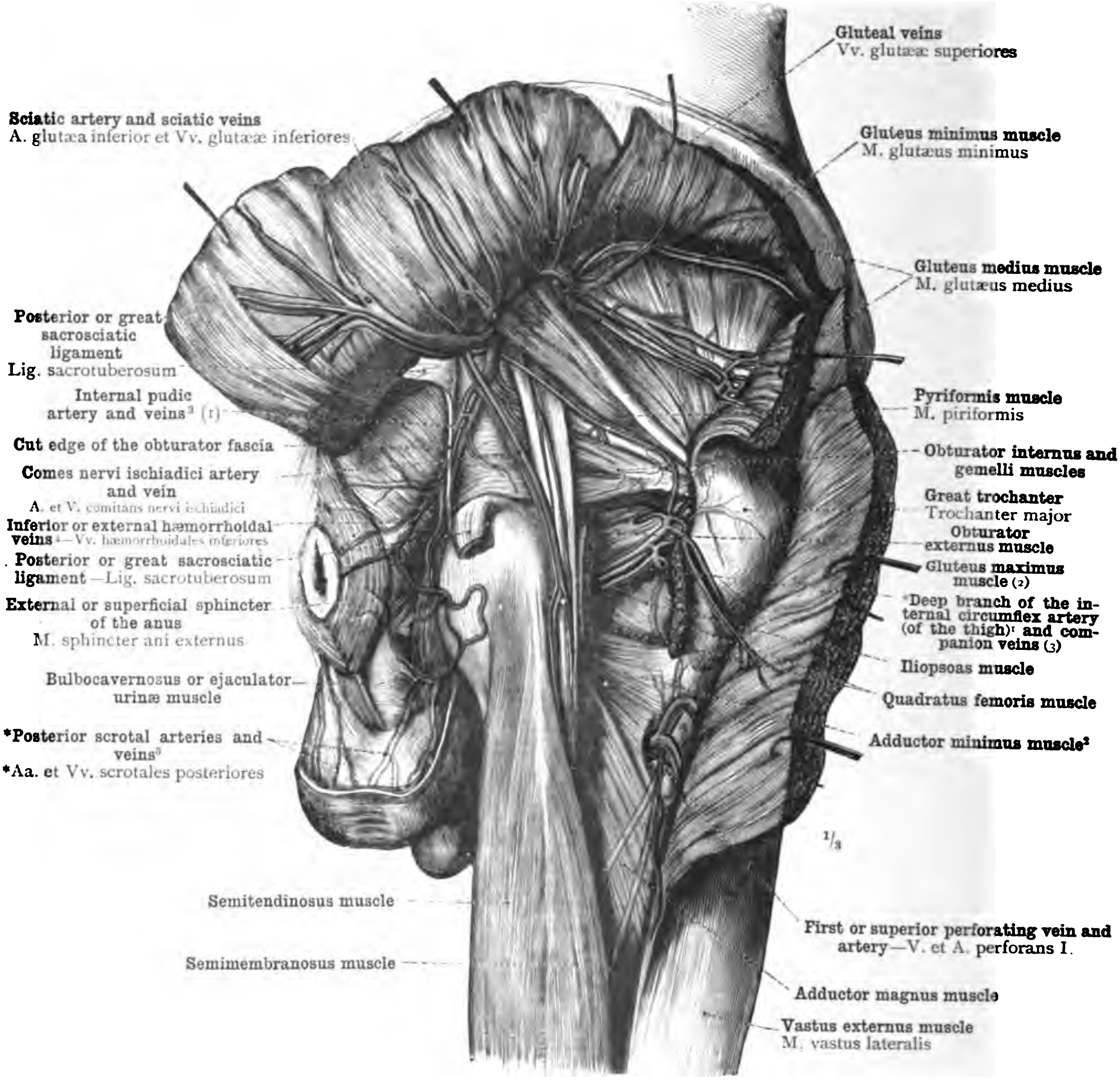
[1] Called by Macalister the *sural vein*.

Cutaneous Veins of the Lower Limb.


Gluteal veins
Vv. glutææ superiores
Sciatic artery and sciatic veins
A. glutæa inferior et Vv. glutææ inferiores
Gluteus minimus muscle
M. glutæus minimus
Gluteus medius muscle
M. glutæus medius
Posterior or great sacrosciatic ligament
Lig. sacrotuberosum
Internal pudic artery and veins³ (1)
Pyriformis muscle
M. piriformis
Cut edge of the obturator fascia
Obturator internus and gemelli muscles
Comes nervi ischiadici artery and vein
A. et V. comitans nervi ischiadici
Great trochanter
Trochanter major
Inferior or external hæmorrhoidal veins⁴—Vv. hæmorrhoidales inferiores
Obturator externus muscle
Posterior or great sacrosciatic ligament—Lig. sacrotuberosum
Gluteus maximus muscle (2)
External or superficial sphincter of the anus
M. sphincter ani externus
*Deep branch of the internal circumflex artery (of the thigh)¹ and companion veins (3)
Iliopsoas muscle
Bulbocavernosus or ejaculator urinæ muscle
Quadratus femoris muscle
*Posterior scrotal arteries and veins⁵
*Aa. et Vv. scrotales posteriores
Adductor minimus muscle²
1/3
Semitendinosus muscle
First or superior perforating vein and artery—V. et A. perforans I.
Semimembranosus muscle
Adductor magnus muscle
Vastus externus muscle
M. vastus lateralis

(1) A. et Vv. pudendæ internæ (2) M. glutæus maximus (3) *Ramus profundus arteriæ circumflexæ femoris medialis et venæ comitantes

---

[1] The so-called *deep branch of the internal circumflex artery* is by English anatomists regarded as the continuation of that vessel itself. See Appendix, note 224.

[2] See note 2 to p. 644.

[3] See Appendix, note 139.

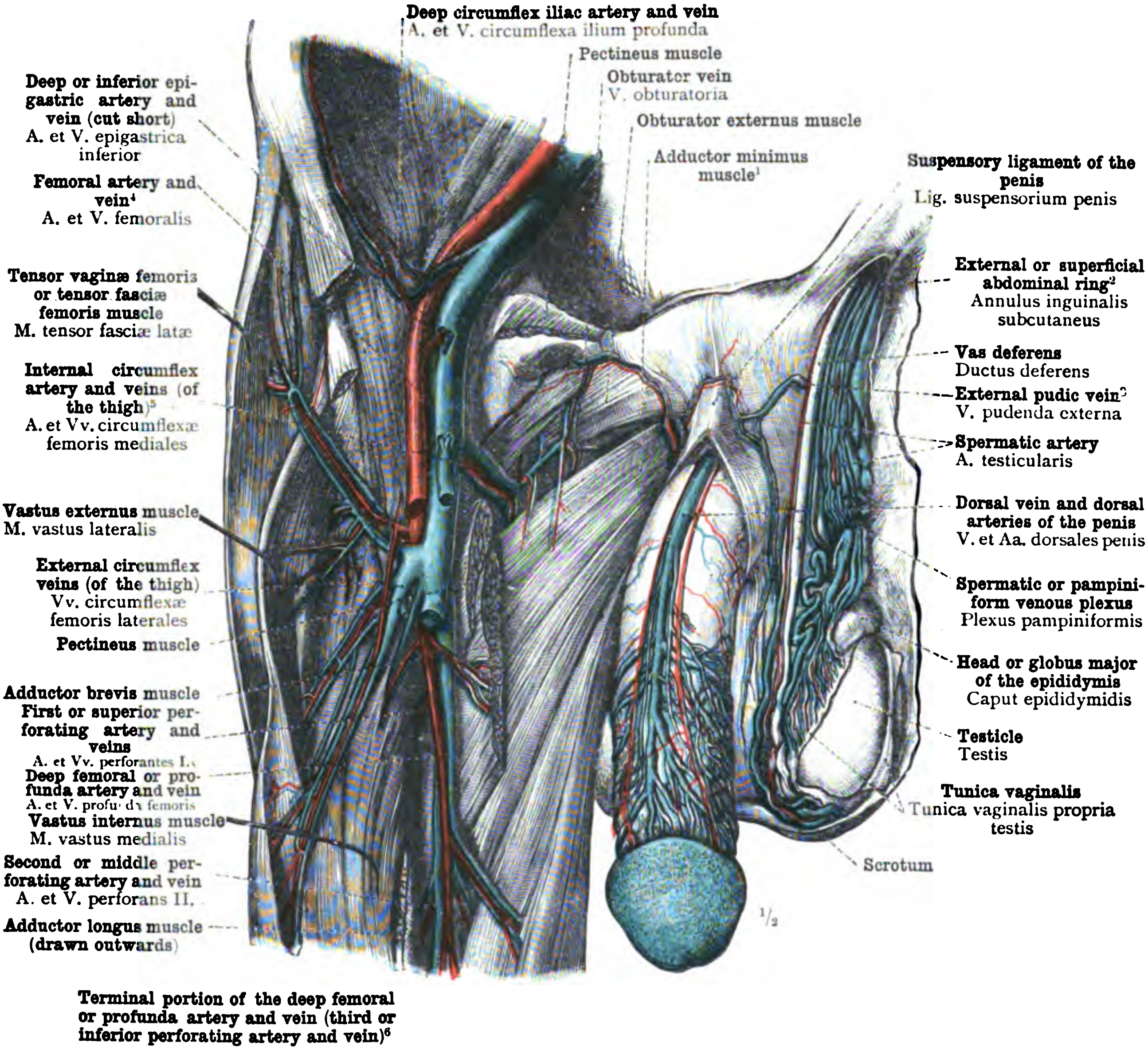
[4] Called by Macalister the *anal veins*.

[5] See Appendix, note 138.

FIG. 1098.—THE DEEP VEINS AND ARTERIES OF THE RIGHT GLUTEAL REGION AND ISCHIORECTAL FOSSA, WITH THE SUPERFICIAL VESSELS OF THE POSTERIOR SURFACE OF THE SCROTUM.

The gluteus maximus and gluteus medius muscles and the posterior or great sacrosciatic ligament were cut across and the segments were drawn apart, and the greater part of the quadratus femoris muscle was cut away.

Deep Veins of the Gluteal Region.


Deep circumflex iliac artery and vein
A. et V. circumflexa ilium profunda
Pectineus muscle
Obturator vein
V. obturatoria
Obturator externus muscle
Adductor minimus muscle[1]
Deep or inferior epigastric artery and vein (cut short)
A. et V. epigastrica inferior
Femoral artery and vein[4]
A. et V. femoralis
Tensor vaginæ femoris or tensor fasciæ femoris muscle
M. tensor fasciæ latæ
Internal circumflex artery and veins (of the thigh)[5]
A. et Vv. circumflexæ femoris mediales
Vastus externus muscle
M. vastus lateralis
External circumflex veins (of the thigh)
Vv. circumflexæ femoris laterales
Pectineus muscle
Adductor brevis muscle
First or superior perforating artery and veins
A. et Vv. perforantes I.
Deep femoral or profunda artery and vein
A. et V. profunda femoris
Vastus internus muscle
M. vastus medialis
Second or middle perforating artery and vein
A. et V. perforans II.
Adductor longus muscle (drawn outwards)
Terminal portion of the deep femoral or profunda artery and vein (third or inferior perforating artery and vein)[6]
Suspensory ligament of the penis
Lig. suspensorium penis
External or superficial abdominal ring[2]
Annulus inguinalis subcutaneus
Vas deferens
Ductus deferens
External pudic vein[3]
V. pudenda externa
Spermatic artery
A. testicularis
Dorsal vein and dorsal arteries of the penis
V. et Aa. dorsales penis
Spermatic or pampiniform venous plexus
Plexus pampiniformis
Head or globus major of the epididymis
Caput epididymidis
Testicle
Testis
Tunica vaginalis
Tunica vaginalis propria testis
Scrotum
1/2

[1] See note 2 to p. 644.

[2] Or *external inguinal aperture.*

[3] Called by Macalister *pubic vein.*

[4] See Appendix, note 223.

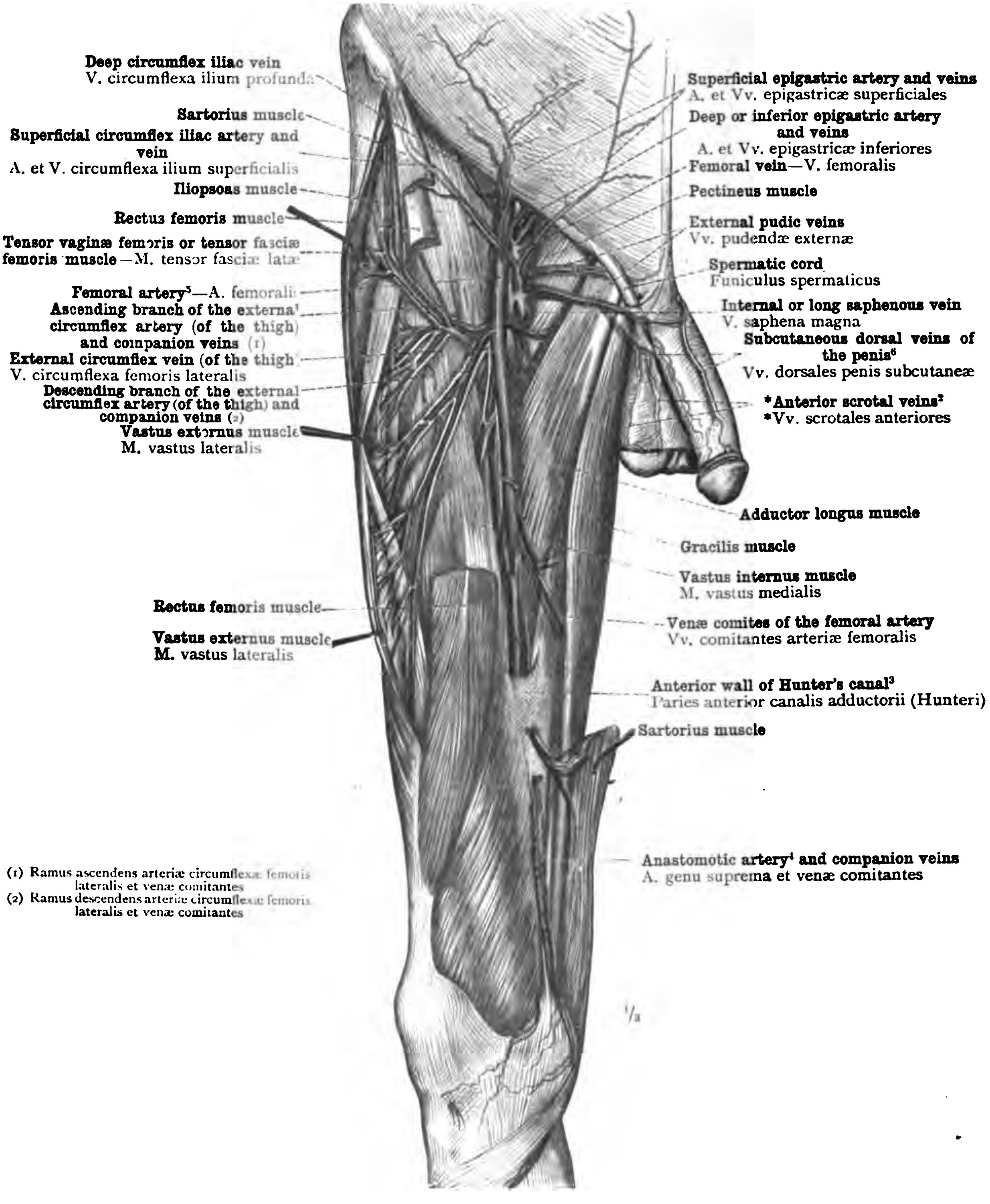
[5] See Appendix, note 224.

[6] See Appendix, note 312.

FIG. 1099.—THE DISTRIBUTION OF THE DEEP FEMORAL OR PROFUNDA VEIN AND ARTERY, VENA ET ARTERIA PROFUNDA FEMORIS; OF THE OBTURATOR VESSELS, VASA OBTURATORIA; OF THE DORSAL VESSELS OF THE PENIS; AND OF THE VEINS OF THE TESTICLE.

The anterior wall of the abdomen was removed, together with Poupart's ligament (the superficial crural arch); the pectineus, adductor brevis, and adductor longus muscles were cut away close to their origin, in order to expose the obturator and the internal circumflex vessels. On the right side, the testis and the spermatic cord were removed; while on the left side these organs were retained, and the spermatic or pampiniform venous plexus was dissected out. On the penis, which was injected both by way of the dorsal vein and by penetration of one of the corpora cavernosa, the deep-seated dorsal vessels were exposed.

Deep Veins of the Thigh and of the Male External Genital Organs.


Deep circumflex iliac vein
V. circumflexa ilium profunda
Sartorius muscle
Superficial circumflex iliac artery and vein
A. et V. circumflexa ilium superficialis
Iliopsoas muscle
Rectus femoris muscle
Tensor vaginæ femoris or tensor fasciæ femoris muscle—M. tensor fasciæ latæ
Femoral artery[5]—A. femoralis
Ascending branch of the external circumflex artery (of the thigh) and companion veins (1)
External circumflex vein (of the thigh)
V. circumflexa femoris lateralis
Descending branch of the external circumflex artery (of the thigh) and companion veins (2)
Vastus externus muscle
M. vastus lateralis
Rectus femoris muscle
Vastus externus muscle
M. vastus lateralis
(1) Ramus ascendens arteriæ circumflexæ femoris lateralis et venæ comitantes
(2) Ramus descendens arteriæ circumflexæ femoris lateralis et venæ comitantes
Superficial epigastric artery and veins
A. et Vv. epigastricæ superficiales
Deep or inferior epigastric artery and veins
A. et Vv. epigastricæ inferiores
Femoral vein—V. femoralis
Pectineus muscle
External pudic veins[1]
Vv. pudendæ externæ
Spermatic cord
Funiculus spermaticus
Internal or long saphenous vein
V. saphena magna
Subcutaneous dorsal veins of the penis[6]
Vv. dorsales penis subcutaneæ
***Anterior scrotal veins**[2]
*Vv. scrotales anteriores
Adductor longus muscle
Gracilis muscle
Vastus internus muscle
M. vastus medialis
Venæ comites of the femoral artery
Vv. comitantes arteriæ femoralis
Anterior wall of Hunter's canal[3]
Paries anterior canalis adductorii (Hunteri)
Sartorius muscle
Anastomotic artery[4] **and companion veins**
A. genu suprema et venæ comitantes
1/2

---

[1] Or *pubic veins*, according to Macalister.
[2] See Appendix, note 138.
[3] See Appendix, note 228.
[4] See Appendix, note 226.
[5] See Appendix, note 223.
[6] See Appendix, note 274.

FIG. 1100.—THE FEMORAL ARTERY AND VEIN, ARTERIA ET VENA FEMORALIS, UNTIL THEIR ENTRANCE INTO HUNTER'S CANAL (*see Appendix, note* 225), AND THE DISTRIBUTION OF THE EXTERAL CIRCUMFLEX ARTERY AND VEIN (OF THE THIGH), ARTERIA ET VENA CIRCUMFLEXA FEMORIS LATERALIS. RIGHT THIGH, SEEN FROM BEFORE.

The sartorius and rectus femoris muscles were in part removed, and the tensor vaginæ femoris and vastus externus muscles were drawn outwards.

Deep Veins of the Front of the Thigh.

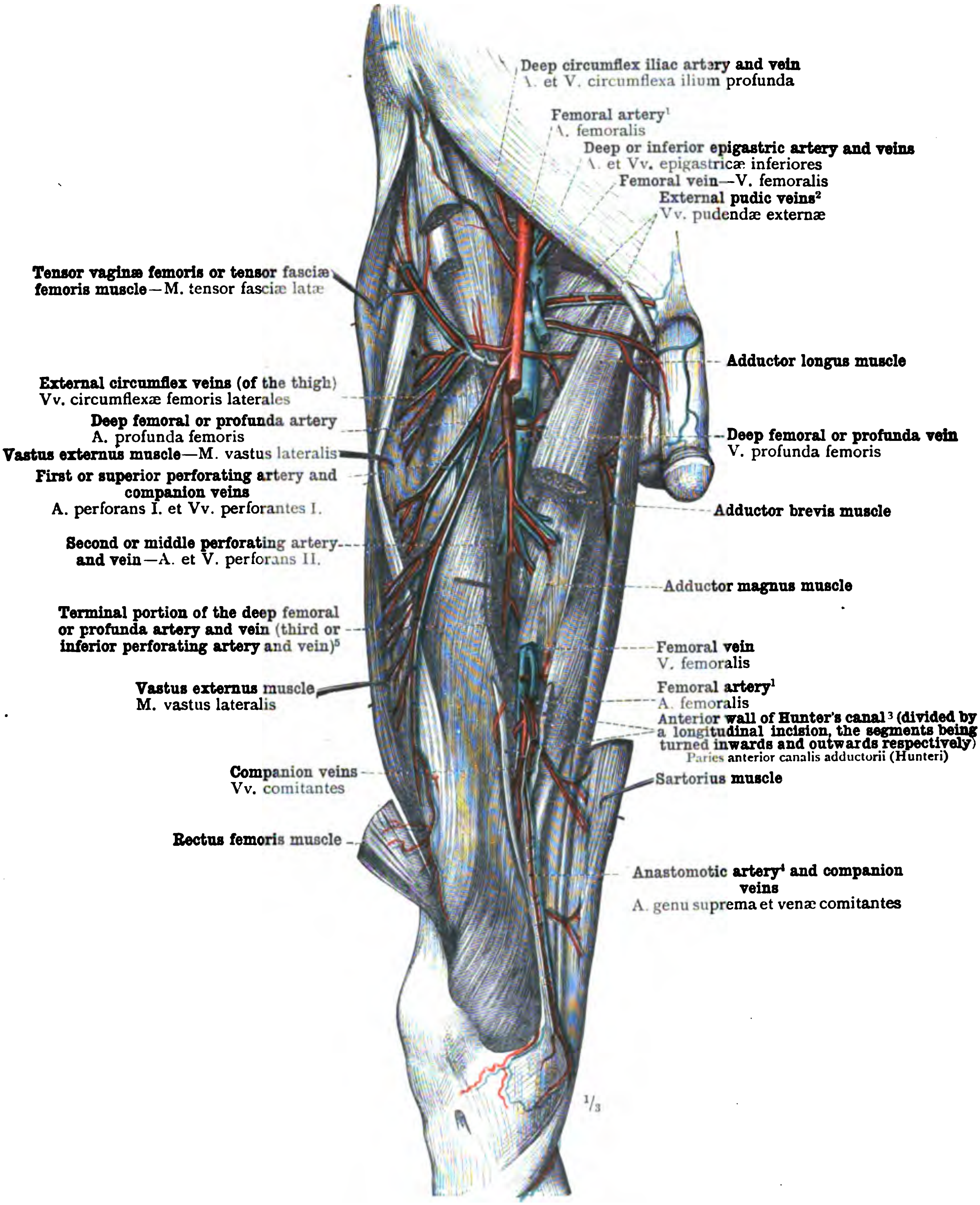

Deep circumflex iliac artery and vein
A. et V. circumflexa ilium profunda
Femoral artery[1]
A. femoralis
Deep or inferior epigastric artery and veins
A. et Vv. epigastricæ inferiores
Femoral vein—V. femoralis
External pudic veins[2]
Vv. pudendæ externæ
Tensor vaginæ femoris or tensor fasciæ femoris muscle—M. tensor fasciæ latæ
Adductor longus muscle
External circumflex veins (of the thigh)
Vv. circumflexæ femoris laterales
Deep femoral or profunda artery
A. profunda femoris
Deep femoral or profunda vein
V. profunda femoris
Vastus externus muscle—M. vastus lateralis
First or superior perforating artery and companion veins
A. perforans I. et Vv. perforantes I.
Adductor brevis muscle
Second or middle perforating artery and vein—A. et V. perforans II.
Adductor magnus muscle
Terminal portion of the deep femoral or profunda artery and vein (third or inferior perforating artery and vein)[5]
Femoral vein
V. femoralis
Vastus externus muscle
M. vastus lateralis
Femoral artery[1]
A. femoralis
Anterior wall of Hunter's canal[3] (divided by a longitudinal incision, the segments being turned inwards and outwards respectively)
Paries anterior canalis adductorii (Hunteri)
Companion veins
Vv. comitantes
Sartorius muscle
Rectus femoris muscle
Anastomotic artery[4] and companion veins
A. genu suprema et venæ comitantes
1/3

FIG. 1101.—THE DEEP FEMORAL OR PROFUNDA ARTERY AND ITS COMPANION VEINS; RIGHT THIGH, SEEN FROM BEFORE.

In the preparation shown in Fig. 1100, a portion of the (superficial) femoral artery and vein were excised, part of the adductor longus muscle was removed, and Hunter's canal was opened from before.

Deep Veins of the Front of the Thigh.

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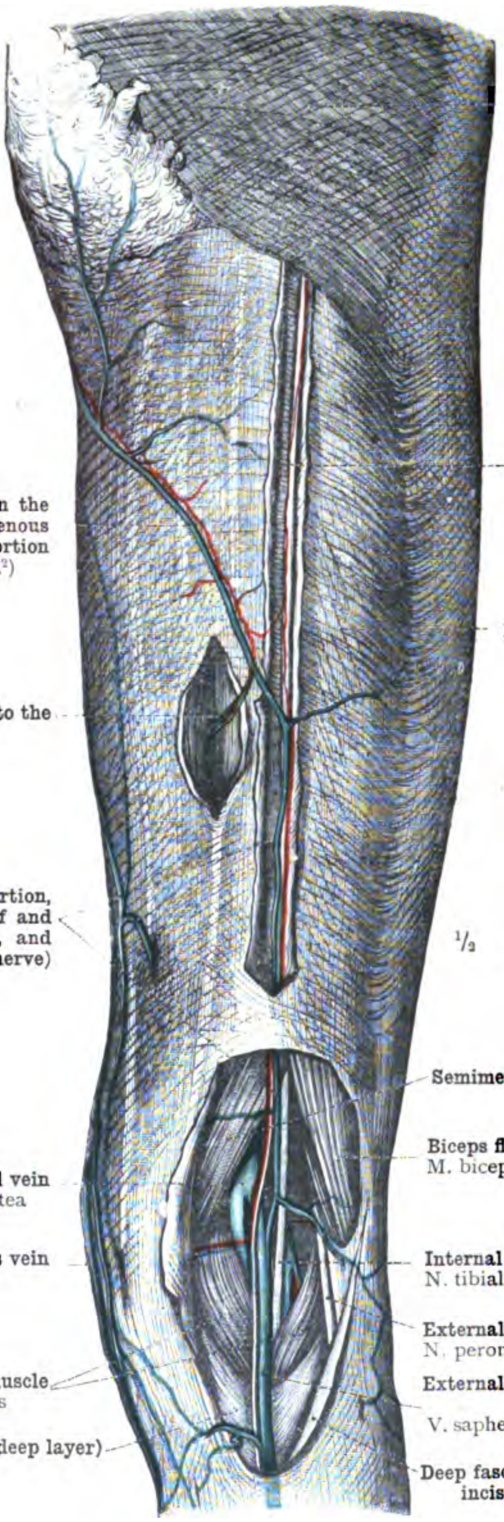
[1] See Appendix, note 223.

[2] Called by Macalister the *pubic veins.*

[3] See Appendix, note 228.

[4] See Appendix, note 226.

[5] See Appendix, note 312.


Deep fascia of the buttock, or gluteal portion of the fascia lata
Fascia glutæa
Small sciatic nerve and companion artery[1]
N. cutaneus femoris posterior et arteria comitans
Communicating branch between the external and the internal saphenous veins (proximal subcutaneous portion of the *femoropopliteal vein[2])
Deep fascia of the thigh, or fascia lata
Communicating branch to the deep veins
*Femoropopliteal vein[2] (distal portion, lying partly in the substance of and partly beneath the fascia lata, and accompanying the small sciatic nerve)
*Vena femoropoplitea
1/2
Semimembranosus muscle
Biceps flexor cruris muscle
M. biceps femoris
Popliteal vein
V. poplitea
Internal or long saphenous vein
V. saphena magna
Internal popliteal nerve
N. tibialis
External popliteal or peroneal nerve
N. peronæus communis
Gastrocnemius muscle
M. gastrocnemius
External or short saphenous vein and small sciatic nerve
V. saphena parva et nervus cutaneus femoris posterior
Deep fascia of the leg (deep layer)
Fascia cruris
Deep fascia of the leg (superficial layer, incised and turned backwards)
Fascia cruris

[1] This artery is one of the *cutaneous* branches of the *sciatic artery*.—Tr.

[2] See Appendix, note 313.

FIG. 1102.—THE *FEMOROPOPLITEAL VEIN, *VENA FEMOROPOPLITEA (*see Appendix, note* 313), OF THE RIGHT THIGH.

The small sciatic nerve (nervus cutaneus femoris posterior), with its companion vessels, was exposed in its course between the layers of the fascia lata along the middle of the back of the thigh; and in the region of the ham the deep fascia was entirely removed.

Superficial Veins of the Back of the Thigh.

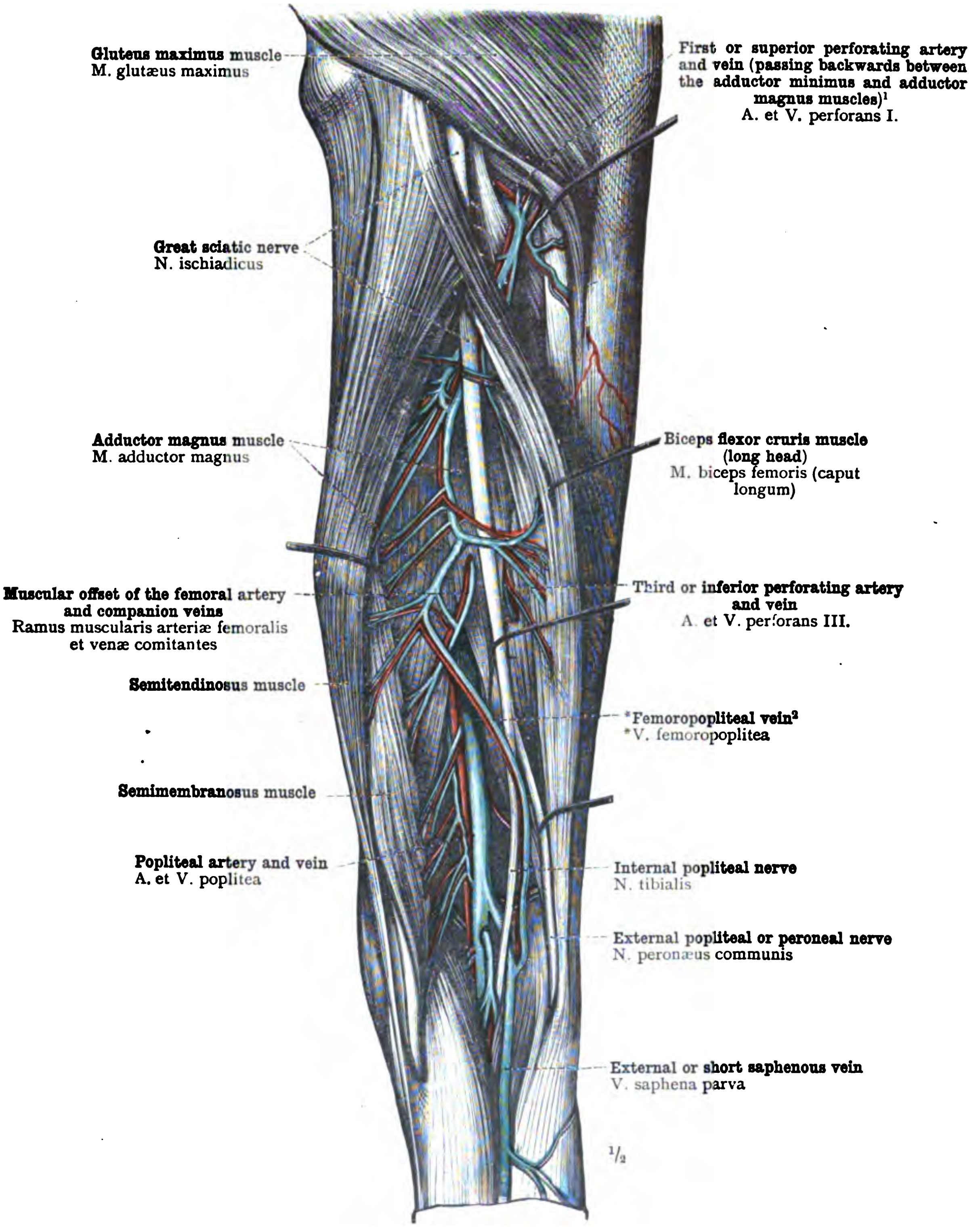

Gluteus maximus muscle
M. glutæus maximus
Great sciatic nerve
N. ischiadicus
Adductor magnus muscle
M. adductor magnus
Muscular offset of the femoral artery **and companion veins**
Ramus muscularis arteriæ femoralis et venæ comitantes
Semitendinosus muscle
Semimembranosus muscle
Popliteal artery and vein
A. et V. poplitea
First **or superior perforating artery and vein (passing backwards between the adductor minimus and adductor magnus muscles)**[1]
A. et V. perforans I.
Biceps **flexor cruris muscle (long head)**
M. biceps femoris (caput longum)
Third or **inferior perforating artery and vein**
A. et V. perforans III.
*Femoro**popliteal vein**[2]
*V. femoropoplitea
Internal **popliteal nerve**
N. tibialis
External **popliteal or peroneal nerve**
N. peronæus communis
External or **short saphenous vein**
V. saphena parva
1/2

FIG. 1103.—THE PERFORATING VEINS, VENÆ PERFORANTES, AND THEIR COMMUNICATION WITH THE EXTERNAL OR SHORT SAPHENOUS VEIN, DISSECTED OUT AT THE BACK OF THE RIGHT THIGH.

The biceps flexor cruris muscle was drawn as far outwards, and the inner hamstring muscles were drawn as far inwards, as possible.

Deep Veins of the Back of the Thigh.

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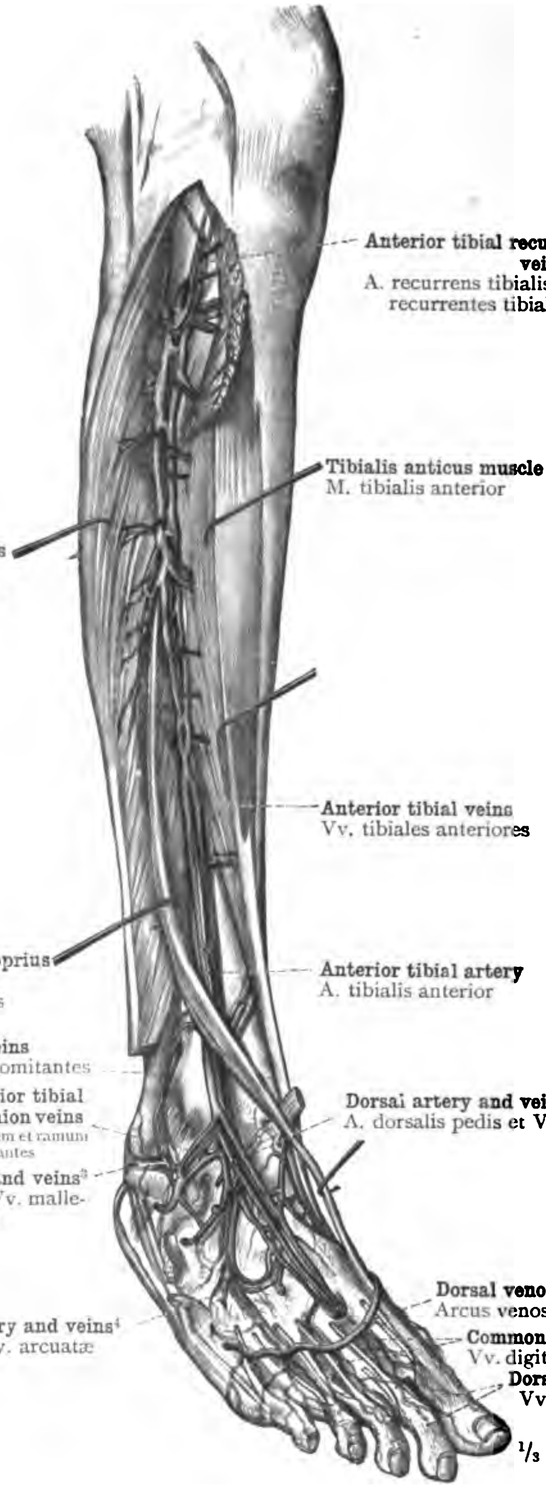
[1] See note [2] to p. 644.

[2] See Appendix, note 313.


Anterior tibial recurrent artery and veins
A. recurrens tibialis anterior et Vv. recurrentes tibiales anteriores
Tibialis anticus muscle
M. tibialis anterior
Extensor longus digitorum pedis muscle
M. extensor digitorum longus
Anterior tibial veins
Vv. tibiales anteriores
Extensor longus *vel* extensor proprius hallucis muscle[2]
M. extensor hallucis longus
Anterior tibial artery
A. tibialis anterior
Anterior peroneal artery and companion veins
Ramus perforans arteriæ peronææ et venæ comitantes
Communicating branch between the anterior tibial and anterior peroneal arteries and companion veins
Ramus communicans inter arteriam tibialem anteriorem et ramum perforantem arteriæ peronææ et venæ comitantes
Dorsal artery and veins of the foot[1]
A. dorsalis pedis et Vv. dorsales pedis
Anterior external malleolar artery and veins[3]
A. malleolaris anterior lateralis et Vv. malleolares anteriores laterales
Dorsal venous arch of the foot
Arcus venosus dorsalis pedis
Metatarsal artery and veins[4]
A. arcuata et Vv. arcuatæ
Common digital veins of the foot
Vv. digitales communes pedis
Dorsal digital veins of the foot
Vv. digitales pedis dorsales
1/3

[1] Often known in England by their Latin names of *dorsalis pedis artery* and *veins*.

[2] See note [2] to p. 364, in Part III.

[3] See Appendix, note 236.

[4] See Appendix, note 239.

FIG. 1104.—THE MUSCLES OF THE FRONT OF THE LEG WERE SEPARATED, THE PROXIMAL PORTION OF THE TIBIALIS ANTICUS MUSCLE WAS DETACHED FROM THE BONE AND TURNED FORWARDS, THE EXTENSOR BREVIS DIGITORUM PEDIS MUSCLE AND THE TENDONS OF THE EXTENSOR LONGUS DIGITORUM PEDIS MUSCLE WERE REMOVED FROM THE DORSUM OF THE TARSUS.

Deep Veins and Arteries of the Front of the Leg and the Dorsum of the Foot.

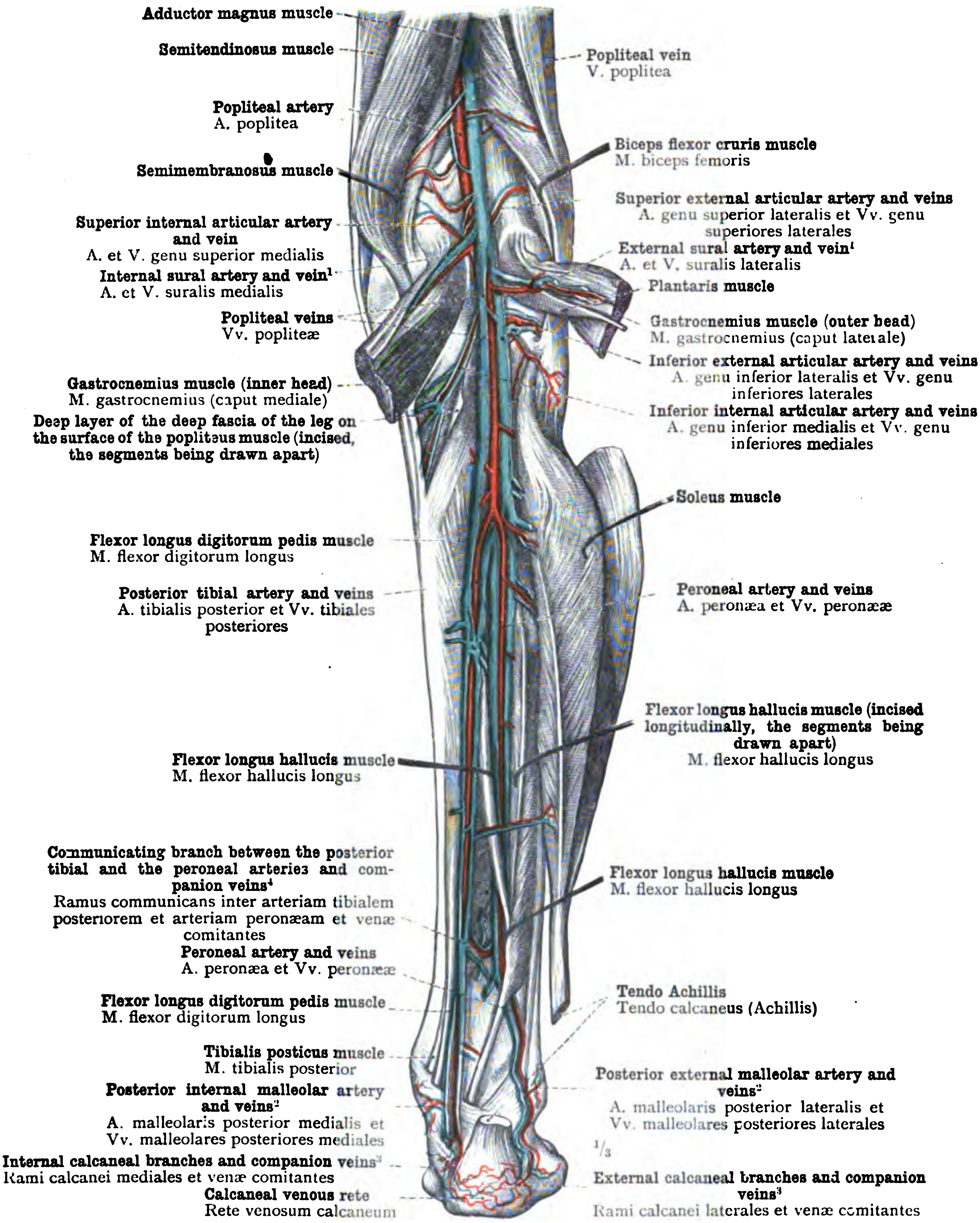

Adductor magnus muscle
Semitendinosus muscle
Popliteal artery
A. poplitea
Semimembranosus muscle
Superior internal articular artery and vein
A. et V. genu superior medialis
Internal sural artery and vein[1]
A. et V. suralis medialis
Popliteal veins
Vv. popliteæ
Gastrocnemius muscle (inner head)
M. gastrocnemius (caput mediale)
Deep layer of the deep fascia of the leg on the surface of the popliteus muscle (incised, the segments being drawn apart)
Flexor longus digitorum pedis muscle
M. flexor digitorum longus
Posterior tibial artery and veins
A. tibialis posterior et Vv. tibiales posteriores
Flexor longus hallucis muscle
M. flexor hallucis longus
Communicating branch between the posterior tibial and the peroneal arteries and companion veins[4]
Ramus communicans inter arteriam tibialem posteriorem et arteriam peronæam et venæ comitantes
Peroneal artery and veins
A. peronæa et Vv. peronææ
Flexor longus digitorum pedis muscle
M. flexor digitorum longus
Tibialis posticus muscle
M. tibialis posterior
Posterior internal malleolar artery and veins[2]
A. malleolaris posterior medialis et Vv. malleolares posteriores mediales
Internal calcaneal branches and companion veins[3]
Rami calcanei mediales et venæ comitantes
Calcaneal venous rete
Rete venosum calcaneum
Popliteal vein
V. poplitea
Biceps flexor cruris muscle
M. biceps femoris
Superior external articular artery and veins
A. genu superior lateralis et Vv. genu superiores laterales
External sural artery and vein[1]
A. et V. suralis lateralis
Plantaris muscle
Gastrocnemius muscle (outer head)
M. gastrocnemius (caput laterale)
Inferior external articular artery and veins
A. genu inferior lateralis et Vv. genu inferiores laterales
Inferior internal articular artery and veins
A. genu inferior medialis et Vv. genu inferiores mediales
Soleus muscle
Peroneal artery and veins
A. peronæa et Vv. peronææ
Flexor longus hallucis muscle (incised longitudinally, the segments being drawn apart)
M. flexor hallucis longus
Flexor longus hallucis muscle
M. flexor hallucis longus
Tendo Achillis
Tendo calcaneus (Achillis)
Posterior external malleolar artery and veins[2]
A. malleolaris posterior lateralis et Vv. malleolares posteriores laterales
1/3
External calcaneal branches and companion veins[3]
Rami calcanei laterales et venæ comitantes

FIG. 1105.—THE HAMSTRING MUSCLES AND THE PROXIMAL EXTREMITIES (INNER AND OUTER) OF THE GASTROCNEMIUS MUSCLE WERE DRAWN APART, THE TENDO ACHILLIS WAS CUT ACROSS TRANSVERSELY A LITTLE ABOVE THE TUBEROSITY OF THE CALCANEUM, THE SOLEUS MUSCLE WAS DETACHED FROM THE TIBIA AND WAS DRAWN OUTWARDS WITH THE GASTROCNEMIUS MUSCLE; THE FLEXOR LONGUS HALLUCIS MUSCLE WAS INCISED LONGITUDINALLY AND THE SEGMENTS WERE DRAWN APART

Deep Veins of the Back of the Leg.

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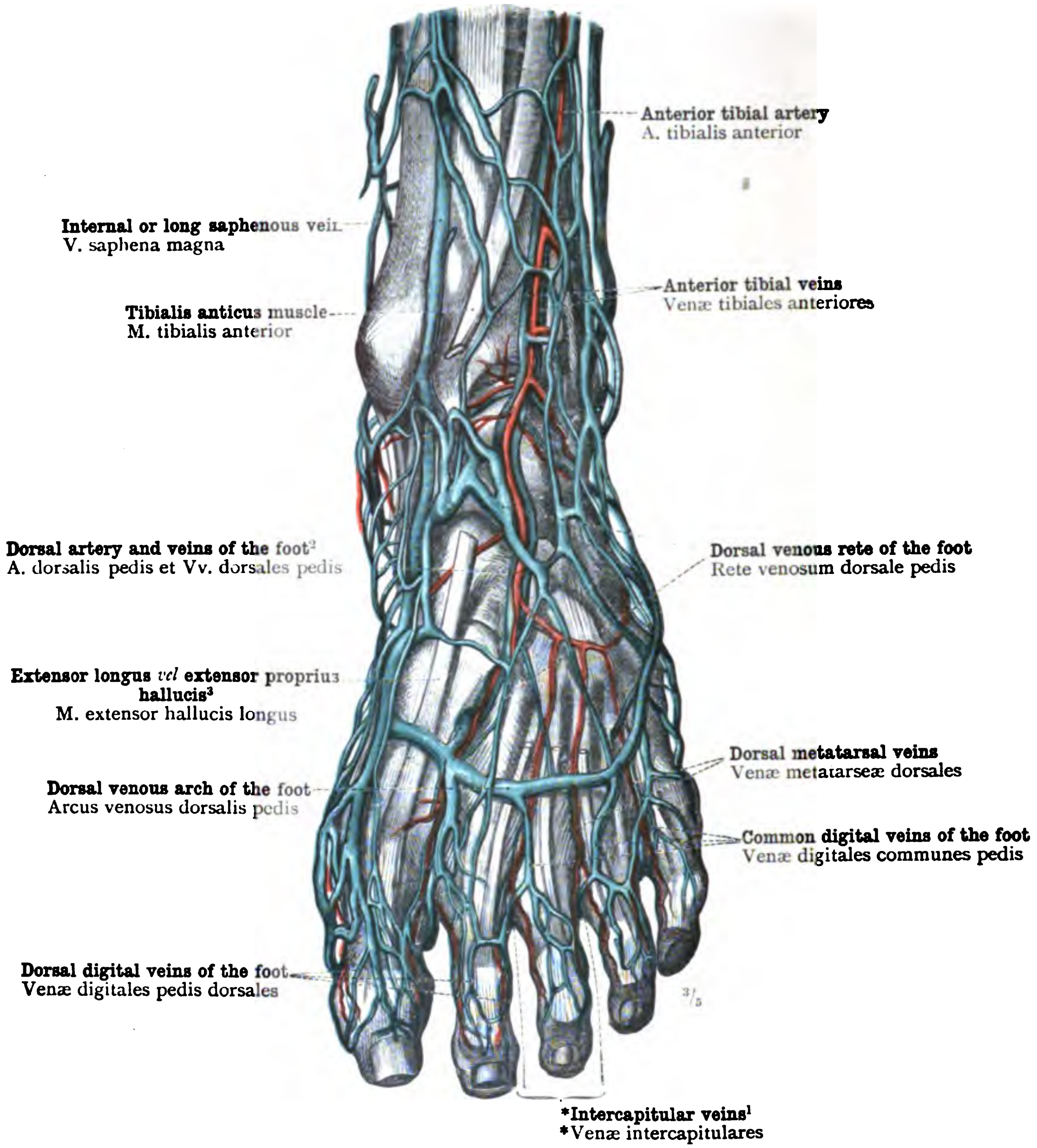
[1] See Appendix, note 232.
[2] See Appendix, note 239.
[3] See Appendix, note 242.
[4] See Appendix, note 247.

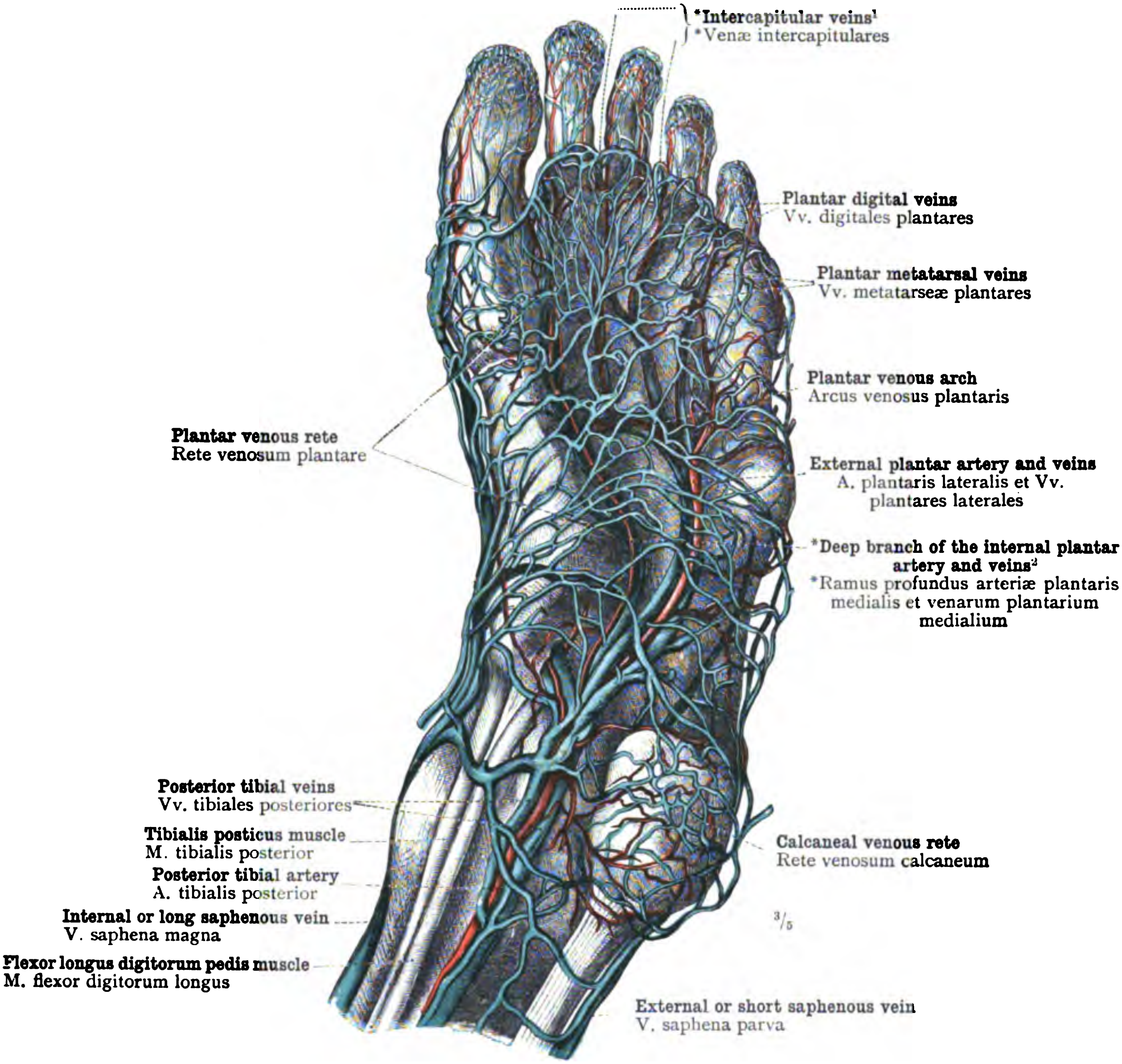

Anterior tibial artery
A. tibialis anterior
Internal or long saphenous vein
V. saphena magna
Anterior tibial veins
Venæ tibiales anteriores
Tibialis anticus muscle
M. tibialis anterior
Dorsal artery and veins of the foot[2]
A. dorsalis pedis et Vv. dorsales pedis
Dorsal venous rete of the foot
Rete venosum dorsale pedis
Extensor longus *vel* extensor proprius hallucis[3]
M. extensor hallucis longus
Dorsal metatarsal veins
Venæ metatarseæ dorsales
Dorsal venous arch of the foot
Arcus venosus dorsalis pedis
Common digital veins of the foot
Venæ digitales communes pedis
Dorsal digital veins of the foot
Venæ digitales pedis dorsales
3/5
***Intercapitular veins**[1]
*Venæ intercapitulares

[1] The **intercapitular veins* of the foot are homologous with those of the hand. See Appendix, note 300.
[2] Often known in England by their Latin name of *dorsalis pedis artery* and *veins*.
[3] See note [2] to p. 364, in Part III.

FIG. 1106.—THE SUPERFICIAL VEINS AND THE DEEP VEINS AND ARTERIES OF THE DORSUM OF THE FOOT: THE DORSAL DIGITAL VEINS OF THE FOOT, VENÆ DIGITALES PEDIS DORSALES, AND THE COMMON DIGITAL VEINS OF THE FOOT, VENÆ DIGITALES COMMUNES PEDIS; THE DORSAL METATARSAL VEINS, VENÆ METATARSEÆ DORSALES, AND THE *INTERCAPITULAR VEINS (OF THE FOOT), *VENÆ INTERCAPITULARES (PEDIS); THE DORSAL VENOUS ARCH OF THE FOOT, ARCUS VENOSUS DORSALIS PEDIS, AND THE DORSAL VENOUS RETE OF THE FOOT, RETE VENOSUM DORSALE PEDIS; THE CONTINUITY OF THE DORSAL VEINS OF THE FOOT, VENÆ DORSALES PEDIS, WITH THE ANTERIOR TIBIAL VEINS, VENÆ TIBIALES ANTERIORES; THE INTERNAL OR LONG SAPHENOUS VEIN, VENA SAPHENA MAGNA.

Of the muscles of the front of the leg, the tibialis anticus muscle only was retained; on the dorsum of the foot, the extensor brevis digitorum pedis muscle was removed, but the distal extremities of the tendons of the extensor longus digitorum pedis muscle were retained.

Veins of the Dorsum of the Foot.



[1] See Appendix, note 300.

[2] See Appendix, note 250.

FIG. 1107.—THE SUPERFICIAL VEINS AND THE DEEP VEINS AND ARTERIES OF THE SOLE OF THE FOOT: THE PLANTAR VENOUS RETE, RETE VENOSUM PLANTARE, AND THE CALCANEAL VENOUS RETE, RETE VENOSUM CALCANEUM; THE PLANTAR DIGITAL VEINS, VENÆ DIGITALES PLANTARES, AND THE *INTERCAPITULAR VEINS (OF THE FOOT), *VENÆ INTERCAPITULARES (PEDIS); THE PLANTAR METATARSAL VEINS, VENÆ METATARSEÆ PLANTARES, AND THE PLANTAR VENOUS ARCH, ARCUS VENOSUS PLANTARIS; THE CONTINUITY OF THE INTERNAL AND EXTERNAL PLANTAR VEINS, VENÆ PLANTARES MEDIALIS ET LATERALIS, WITH THE POSTERIOR TIBIAL VEINS, VENÆ TIBIALES POSTERIORES; THE PLANTAR RADICLES OF THE INTERNAL OR LONG AND THE EXTERNAL OR SHORT SAPHENOUS VEINS, VENÆ SAPHENÆ, MAGNA ET PARVA.

The muscles of the sole of the foot were entirely removed, the superficial and deep bloodvessels being left intact.

Veins of the Sole of the Foot.

SYSTEMA LYMPHATICUM

THE LYMPHATIC SYSTEM

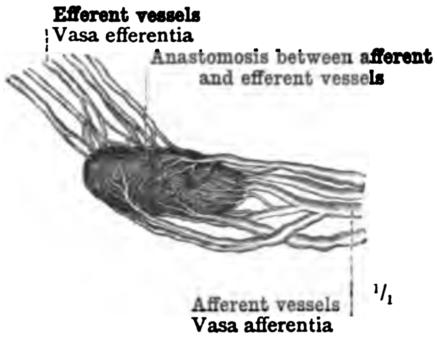


FIG. 1108.—LYMPHATIC GLAND (HUMAN) FROM THE INTERNAL ILIAC GROUP, OF WHICH THE AFFERENT AND EFFERENT VESSELS HAVE BEEN INJECTED.

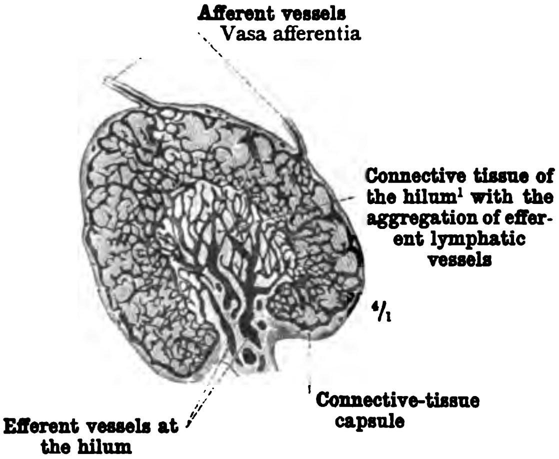

Afferent vessels
Vasa afferentia
Connective tissue of the hilum[1] with the aggregation of efferent lymphatic vessels
4/1
Connective-tissue capsule
Efferent vessels at the hilum

FIG. 1109.—TRANSVERSE SECTION THROUGH ONE OF THE INTERNAL ILIAC LYMPHATIC GLANDS OF MAN IN WHICH THE LYMPHATIC VESSELS HAVE BEEN INJECTED WITH PRUSSIAN BLUE AND THE GLAND HAS SUBSEQUENTLY BEEN HARDENED IN ALCOHOL.

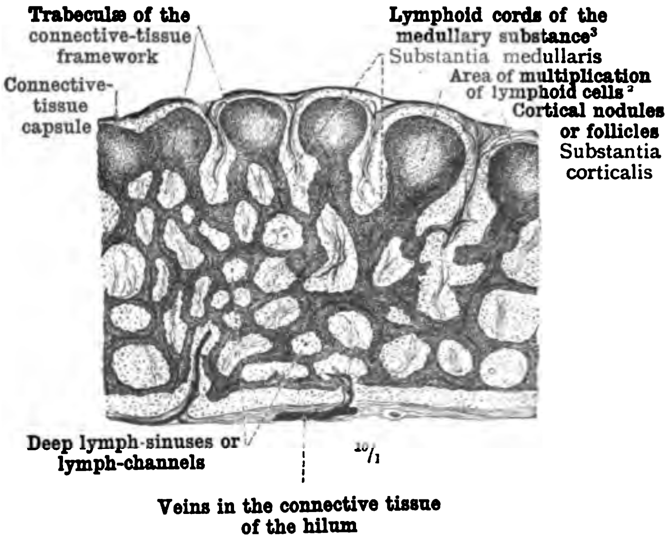

Trabeculæ of the connective-tissue framework
Lymphoid cords of the medullary substance[3]
Substantia medullaris
Area of multiplication of lymphoid cells[2]
Connective-tissue capsule
Cortical nodules or follicles
Substantia corticalis
Deep lymph-sinuses or lymph-channels
10/1
Veins in the connective tissue of the hilum

FIG. 1110.—SECTION OF A MESENTERIC LYMPHATIC GLAND, HARDENED IN ALCOHOL.

The bloodvessels, which were injected with Prussian blue, are tinted deep black.

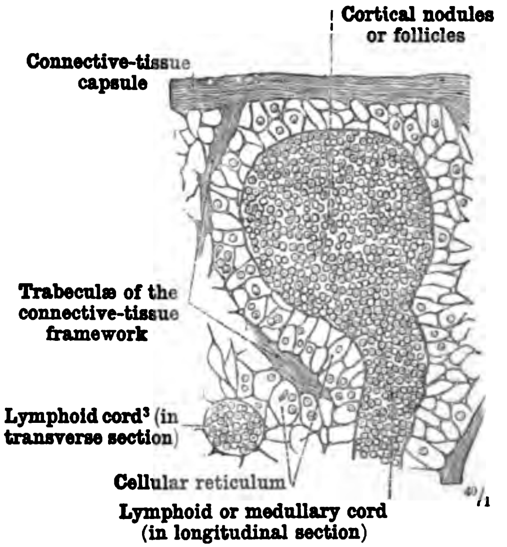

Cortical nodules or follicles
Connective-tissue capsule
Trabeculæ of the connective-tissue framework
Lymphoid cord[3] (in transverse section)
Cellular reticulum
40/1
Lymphoid or medullary cord (in longitudinal section)

FIG. 1111.—CORTICAL NODULES OR FOLLICLES AND LYMPHOID OR MEDULLARY CORDS OF A MESENTERIC LYMPHATIC GLAND, SEEN IN TRANSVERSE SECTION, AND MAGNIFIED FORTY DIAMETERS.

Lymphoglandulæ—Lymphatic glands.

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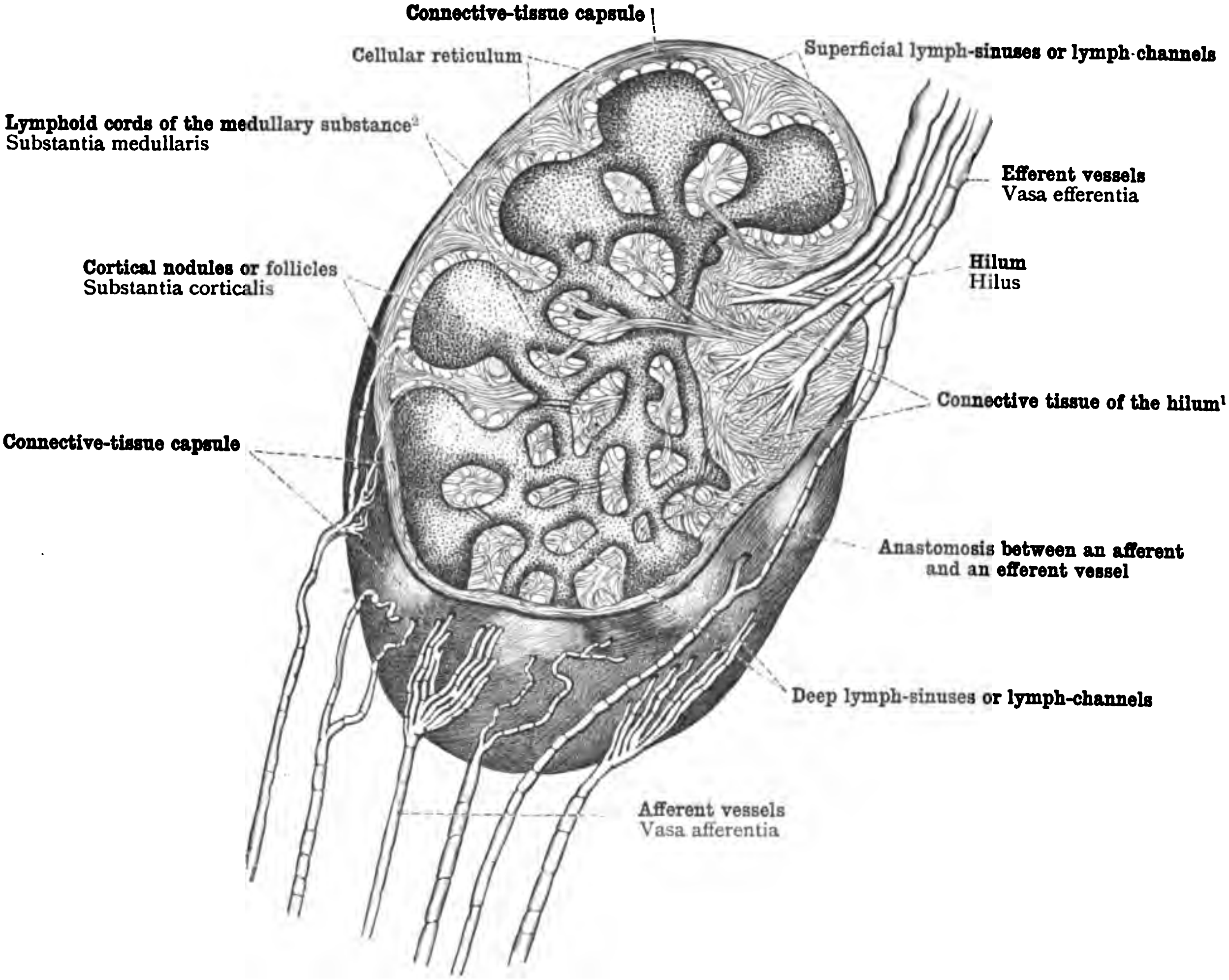
[1] *Connective Tissue of the Hilum.*—"In the region of the hilum, where the efferent vessels leave the gland, the trabeculæ combine with the connective-tissue capsule to form a dense mass of connective tissue, the *Hilusstroma*, in the interior of which the radicles of the efferent lymphatic vessels are aggregated" (Von Langer and Toldt, *op. cit.*, pp. 561, 562). It is this term *Hilusstroma* which I have translated by the phrase "connective tissue of the hilum."—TR.

[2] *Keimcentrum* in the German original.

[3] Or *medullary cords* (Foster).

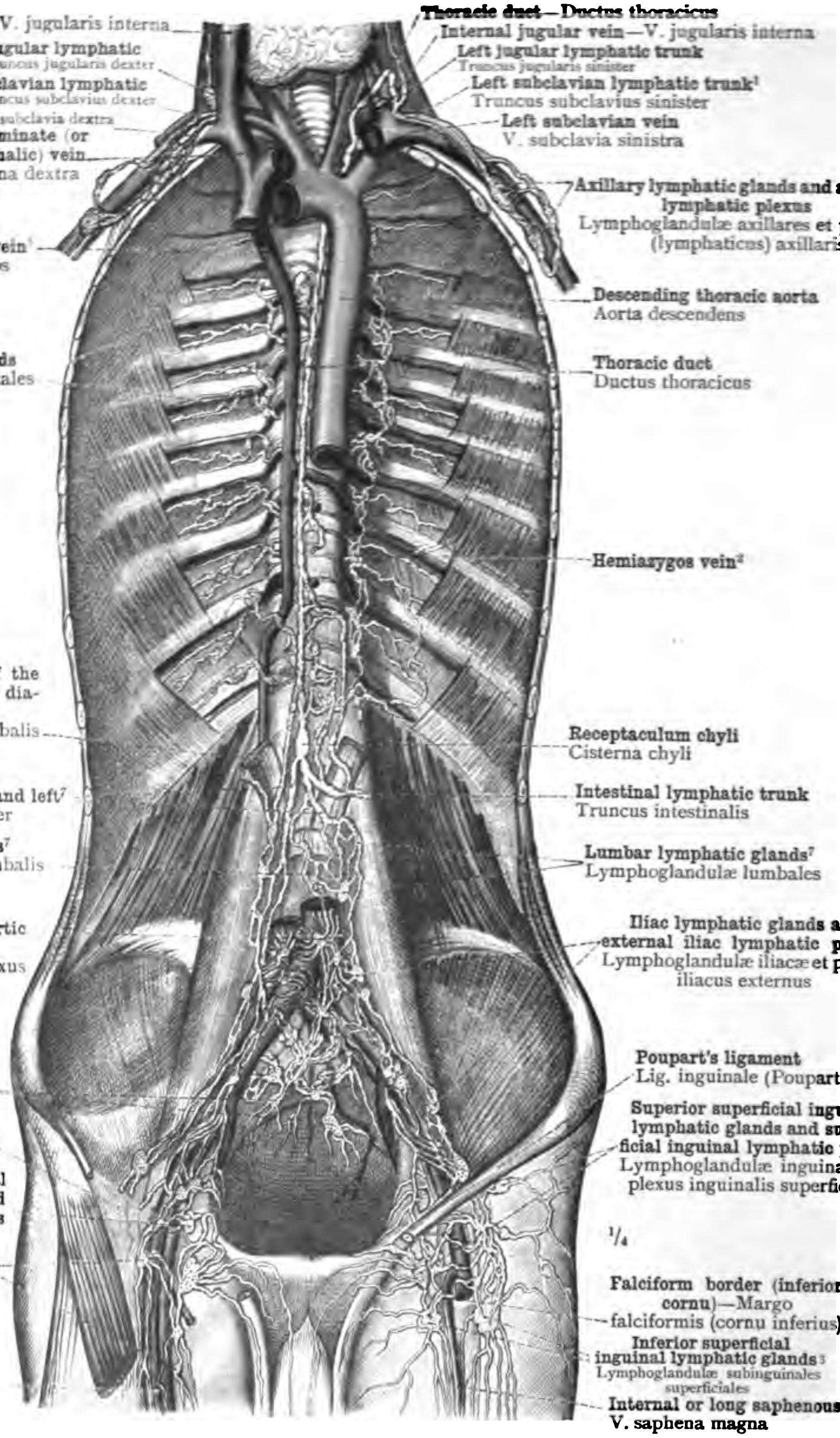

Connective-tissue capsule
Cellular reticulum
Superficial lymph-sinuses or lymph-channels
Lymphoid cords of the medullary substance[2]
Substantia medullaris
Efferent vessels
Vasa efferentia
Cortical nodules or follicles
Substantia corticalis
Hilum
Hilus
Connective tissue of the hilum[1]
Connective-tissue capsule
Anastomosis between an afferent and an efferent vessel
Deep lymph-sinuses or lymph-channels
Afferent vessels
Vasa afferentia

[1] See note [1] to p. 716.

[2] Or *medullary cords* (Foster).

FIG. 1112.—DIAGRAMMATIC REPRESENTATION OF THE INTERNAL STRUCTURE OF A LYMPHATIC GLAND WITH AFFERENT AND EFFERENT LYMPHATIC VESSELS, VASA AFFERENTIA ET VASA EFFERENTIA.

Lymphoglandulæ—Lymphatic glands.


Internal jugular vein—V. jugularis interna
Right lymphatic duct
Ductus lymphaticus dexter
Right jugular lymphatic trunk—Truncus jugularis dexter
Right subclavian lymphatic trunk[4]—Truncus subclavius dexter
Right subclavian vein—V. subclavia dextra
Right innominate (or brachiocephalic) vein
V. anonyma dextra
Azygos vein[5]
V. azygos
Intercostal lymphatic glands
Lymphoglandulæ intercostales
Inner crus or pillar[6] of the vertebral portion of the diaphragm
Crus mediale partis lumbalis diaphragmatis
Lumbar lymphatic trunks, right and left[7]
Trunci lumbales, dexter et sinister
Lumbar lymphatic plexus[7]
Plexus (lymphaticus) lumbalis
Aortic lymphatic glands and aortic lymphatic plexus[7]
Lymphoglandulæ aorticæ et plexus (lymphaticus) aorticus
Sacral lymphatic glands and median sacral lymphatic plexus
Lymphoglandulæ sacrales et plexus sacralis medius
Iliac fascia
Fascia iliopectinea
Lymphatic gland of the femoral ring (*gland of Rosenmüller) and deep inguinal lymphatic plexus
Deep inguinal lymphatic glands and deep-seated lymphatic vessels
Lymphoglandulæ subinguinales profundæ et vasa lymphatica profunda
Femoral artery and vein
A. et V. femoralis
Thoracic duct—Ductus thoracicus
Internal jugular vein—V. jugularis interna
Left jugular lymphatic trunk
Truncus jugularis sinister
Left subclavian lymphatic trunk[1]
Truncus subclavius sinister
Left subclavian vein
V. subclavia sinistra
Axillary lymphatic glands and axillary lymphatic plexus
Lymphoglandulæ axillares et plexus (lymphaticus) axillaris
Descending thoracic aorta
Aorta descendens
Thoracic duct
Ductus thoracicus
Hemiazygos vein[2]
Receptaculum chyli
Cisterna chyli
Intestinal lymphatic trunk
Truncus intestinalis
Lumbar lymphatic glands[7]
Lymphoglandulæ lumbales
Iliac lymphatic glands and external iliac lymphatic plexus
Lymphoglandulæ iliacæ et plexus iliacus externus
Poupart's ligament
Lig. inguinale (Pouparti)
Superior superficial inguinal lymphatic glands and superficial inguinal lymphatic plexus
Lymphoglandulæ inguinales et plexus inguinalis superficialis
¹/₄
Falciform border (inferior cornu)—Margo falciformis (cornu inferius)
Inferior superficial inguinal lymphatic glands[3]
Lymphoglandulæ subinguinales superficiales
Internal or long saphenous vein
V. saphena magna

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[1] According to Quain, the *left axillary lymphatic trunk.*

[2] Known also as the *left lower* or *small azygos vein.*

[3] Often called the *femoral lymphatic glands.*

[4] According to Quain, the *right axillary lymphatic trunk.*

[5] Known also as the *right* or *large azygos vein.*

[6] See note [1] to p. 286, in Part III.

[7] See Appendix, note 314.

FIG. 1113.—THE THORACIC DUCT, DUCTUS THORACICUS, AND THE LYMPHATIC TRUNKS OPENING INTO THAT VESSEL; THE LYMPHATIC VESSELS AND LYMPHATIC GLANDS OF THE POSTERIOR WALL OF THE ABDOMEN; THE SUPERFICIAL AND DEEP LYMPHATIC VESSELS AND LYMPHATIC GLANDS OF THE GROIN.

Ductus thoracicus—The thoracic duct.

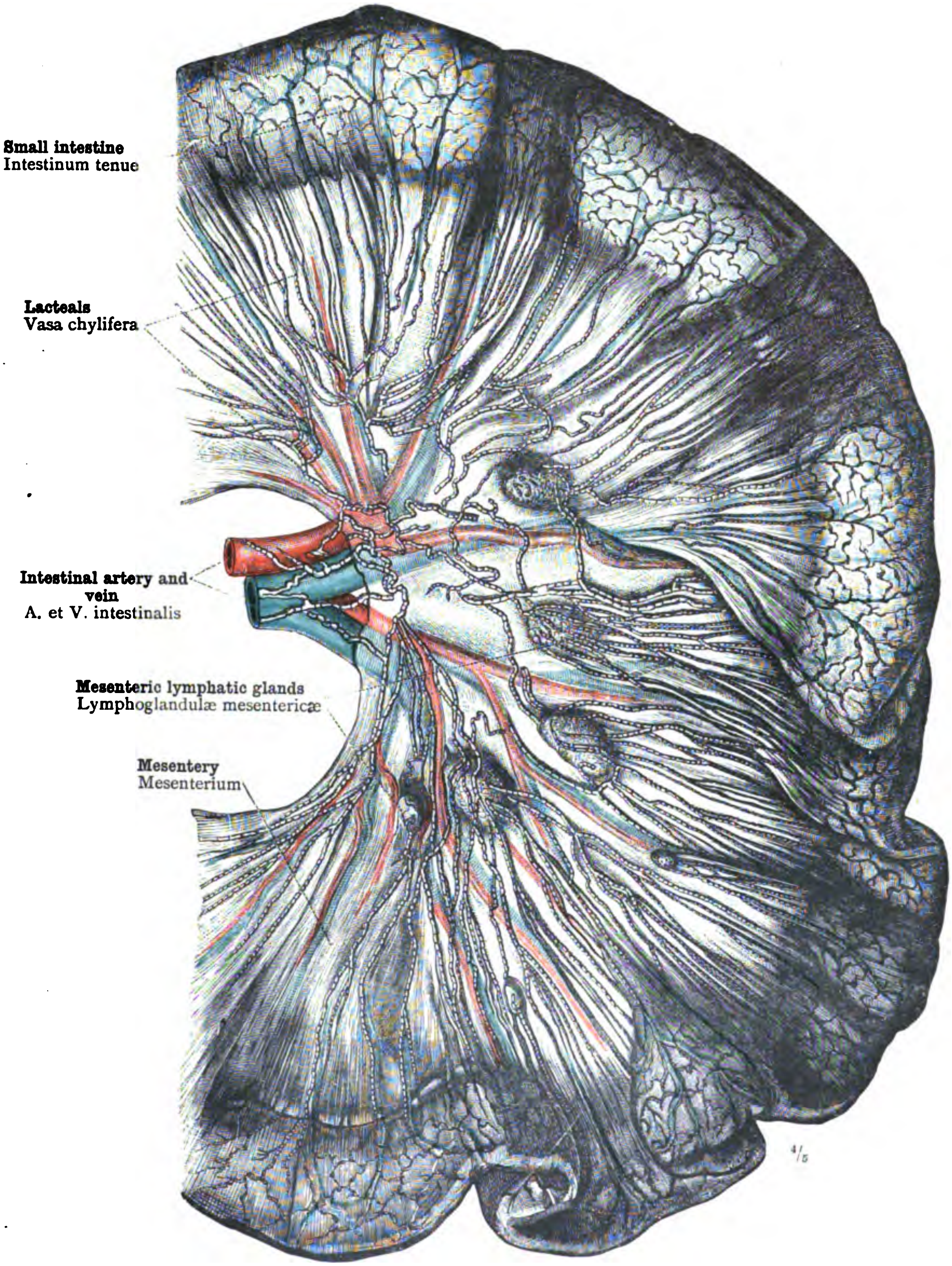

FIG. 1114.—THE LACTEALS AND THE MESENTERIC LYMPHATIC GLANDS, DEMONSTRATED IN A LOOP OF SMALL INTESTINE BY INJECTION WITH METALLIC MERCURY.

Vasa chylifera—Lacteals.—Lymphoglandulæ mesentericæ—Mesenteric lymphatic glands.

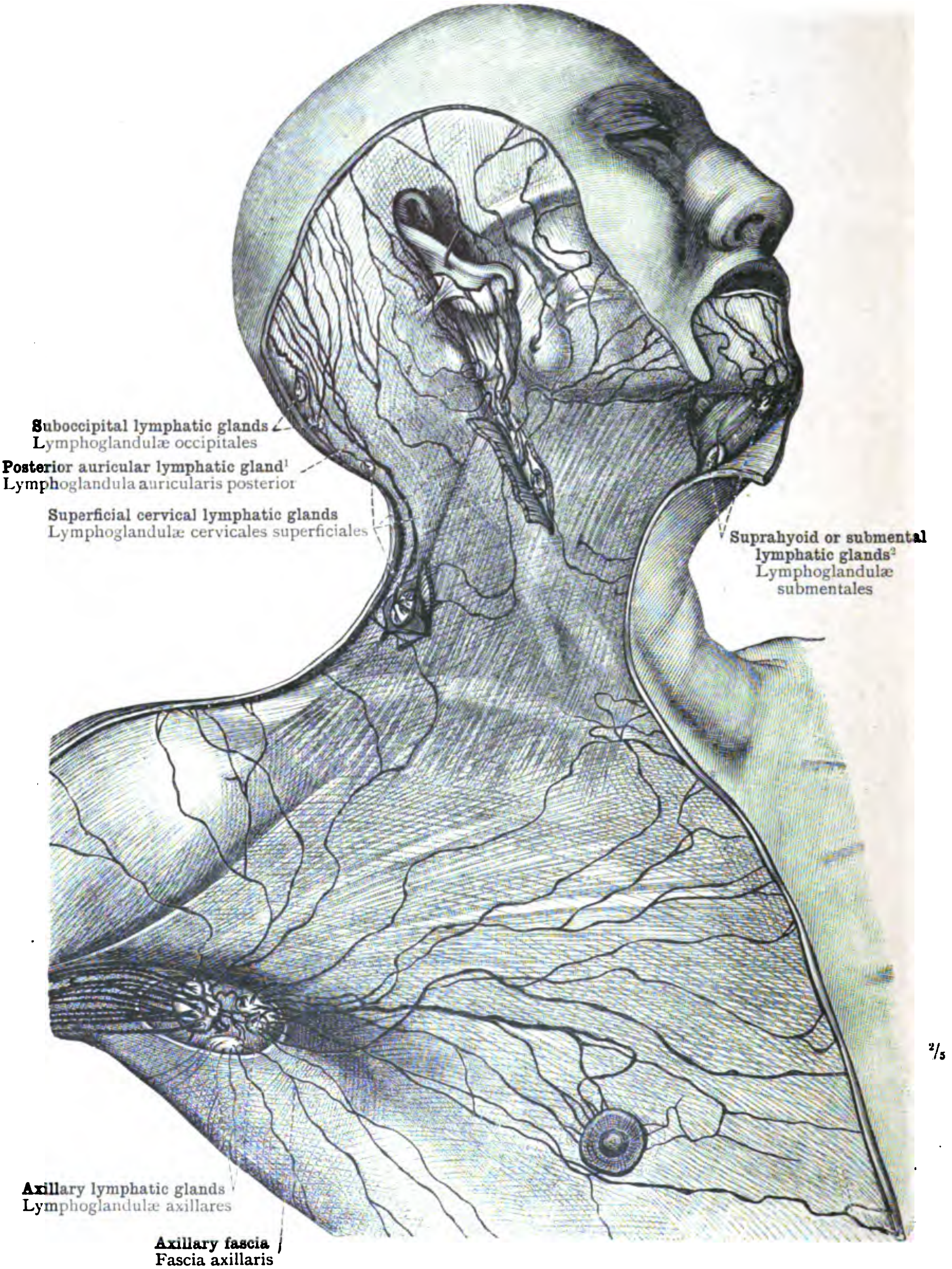
Suboccipital lymphatic glands
Lymphoglandulæ occipitales
Posterior auricular lymphatic gland[1]
Lymphoglandula auricularis posterior
Superficial cervical lymphatic glands
Lymphoglandulæ cervicales superficiales
Suprahyoid or submental lymphatic glands[2]
Lymphoglandulæ submentales
2/5
Axillary lymphatic glands
Lymphoglandulæ axillares
Axillary fascia
Fascia axillaris

FIG. 1115.—THE SUPERFICIAL LYMPHATIC VESSELS, VASA LYMPHATICA SUPERFICIALIA, OF THE HEAD AND NECK, AND OF THE UPPER THORACIC AND THE HUMERAL REGIONS, WITH THE SUPERFICIAL LYMPHATIC GLANDS WITH WHICH THEY ARE CONNECTED.

Lymphatic Vessels of the Head, the Neck, and the Anterior Wall of the Thorax.

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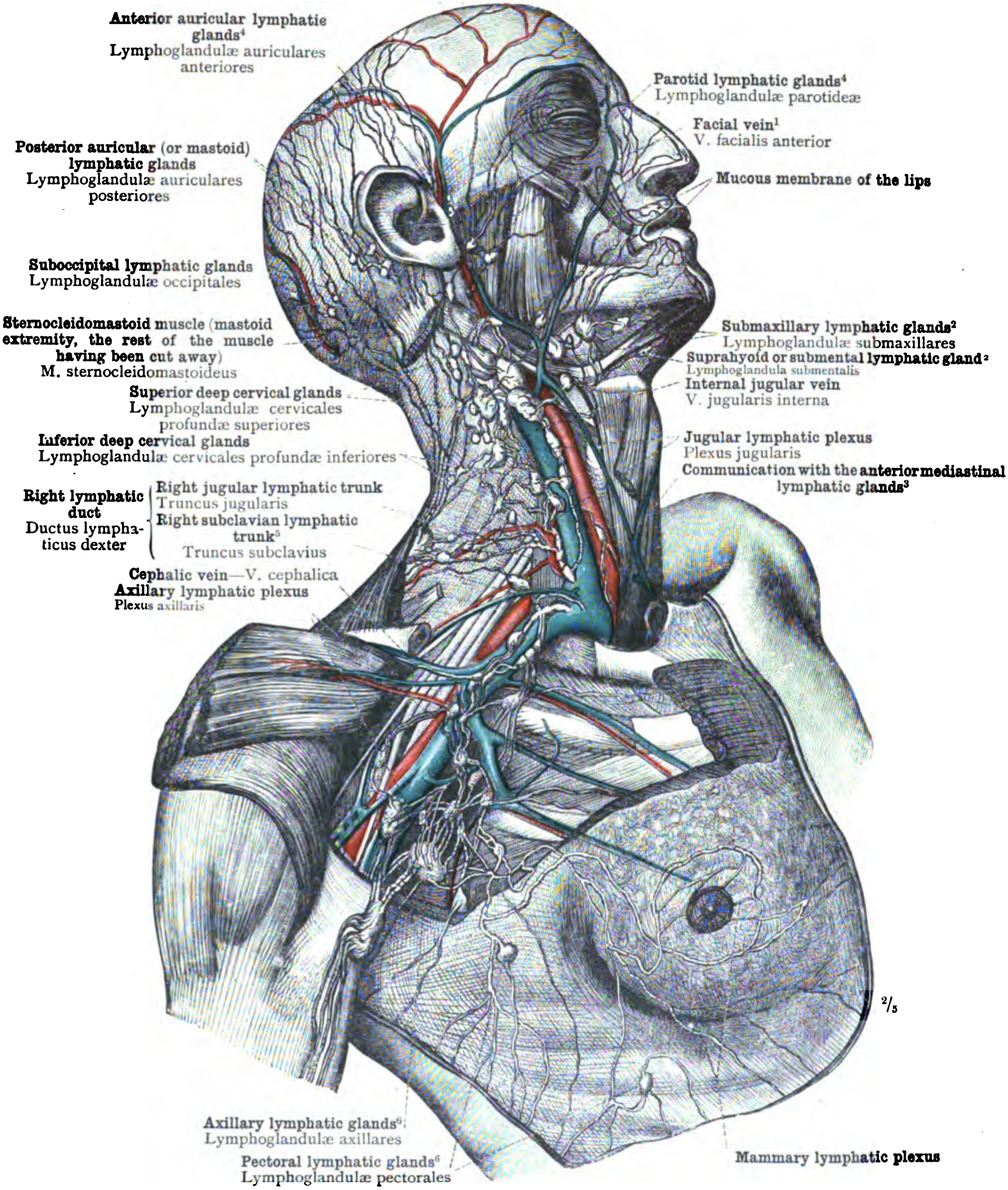
[1] This is one of the *mastoid lymphatic glands* in Quain's nomenclature.

[2] See Appendix, note 315.


Anterior auricular lymphatic glands[4]
Lymphoglandulæ auriculares anteriores
Posterior auricular (or mastoid) lymphatic glands
Lymphoglandulæ auriculares posteriores
Suboccipital lymphatic glands
Lymphoglandulæ occipitales
Sternocleidomastoid muscle (mastoid extremity, the rest of the muscle having been cut away)
M. sternocleidomastoideus
Superior deep cervical glands
Lymphoglandulæ cervicales profundæ superiores
Inferior deep cervical glands
Lymphoglandulæ cervicales profundæ inferiores
Right lymphatic duct
Ductus lymphaticus dexter
Right jugular lymphatic trunk
Truncus jugularis
Right subclavian lymphatic trunk[5]
Truncus subclavius
Cephalic vein—V. cephalica
Axillary lymphatic plexus
Plexus axillaris
Parotid lymphatic glands[4]
Lymphoglandulæ parotideæ
Facial vein[1]
V. facialis anterior
Mucous membrane of the lips
Submaxillary lymphatic glands[2]
Lymphoglandulæ submaxillares
Suprahyoid or submental lymphatic gland[2]
Lymphoglandula submentalis
Internal jugular vein
V. jugularis interna
Jugular lymphatic plexus
Plexus jugularis
Communication with the anterior mediastinal lymphatic glands[3]
2/5
Axillary lymphatic glands[6]
Lymphoglandulæ axillares
Pectoral lymphatic glands[6]
Lymphoglandulæ pectorales
Mammary lymphatic plexus

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[1] Sometimes distinguished as the *anterior facial vein*. See Appendix, note 283.
[2] See Appendix, note 315.
[3] See Appendix, note 316.
[4] See Appendix, note 317.
[5] According to Quain, the *right axillary lymphatic trunk*.
[6] The *pectoral*, the *subscapular*, and the *infraclavicular lymphatic glands* are described by Quain as subgroups of the *axillary lymphatic glands*.

FIG. 1116.—THE SUPERFICIAL LYMPHATIC VESSELS, VASA LYMPHATICA SUPERFICIALIA, OF THE HEAD, AND THE DEEP LYMPHATIC VESSELS, VASA LYMPHATICA PROFUNDA, OF THE NECK AND THE AXILLA, WITH THE ASSOCIATED LYMPHATIC GLANDS; THE LYMPHATIC VESSELS OF THE FEMALE MAMMARY GLAND.

Lymphatic Vessels of the Head, the Neck, the Axilla, and the Wall of the Thorax.

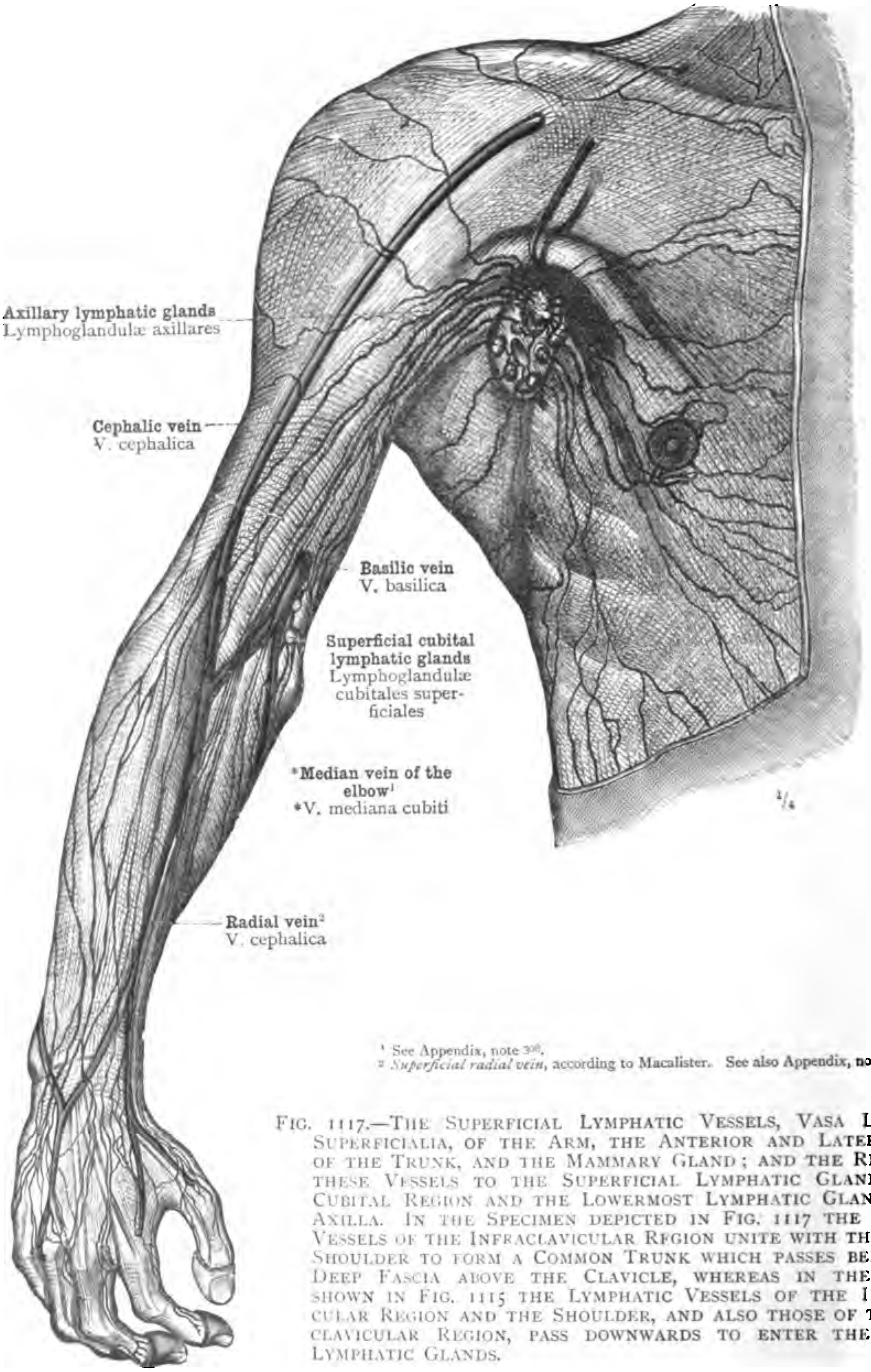
Axillary lymphatic glands
Lymphoglandulæ axillares
Cephalic vein
V. cephalica
Basilic vein
V. basilica
Superficial cubital lymphatic glands
Lymphoglandulæ cubitales superficiales
*Median vein of the elbow[1]
*V. mediana cubiti
Radial vein[2]
V. cephalica
1/4

FIG. 1117.—THE SUPERFICIAL LYMPHATIC VESSELS, VASA LYMPHATICA SUPERFICIALIA, OF THE ARM, THE ANTERIOR AND LATERAL WALLS OF THE TRUNK, AND THE MAMMARY GLAND; AND THE RELATION OF THESE VESSELS TO THE SUPERFICIAL LYMPHATIC GLANDS OF THE CUBITAL REGION AND THE LOWERMOST LYMPHATIC GLANDS OF THE AXILLA. IN THE SPECIMEN DEPICTED IN FIG. 1117 THE LYMPHATIC VESSELS OF THE INFRACLAVICULAR REGION UNITE WITH THOSE OF THE SHOULDER TO FORM A COMMON TRUNK WHICH PASSES BENEATH THE DEEP FASCIA ABOVE THE CLAVICLE, WHEREAS IN THE SPECIMEN SHOWN IN FIG. 1115 THE LYMPHATIC VESSELS OF THE INFRACLAVICULAR REGION AND THE SHOULDER, AND ALSO THOSE OF THE SUPRACLAVICULAR REGION, PASS DOWNWARDS TO ENTER THE AXILLARY LYMPHATIC GLANDS.

Lymphatic Vessels of the Upper Limb and the Anterior and Lateral Walls of the Trunk.

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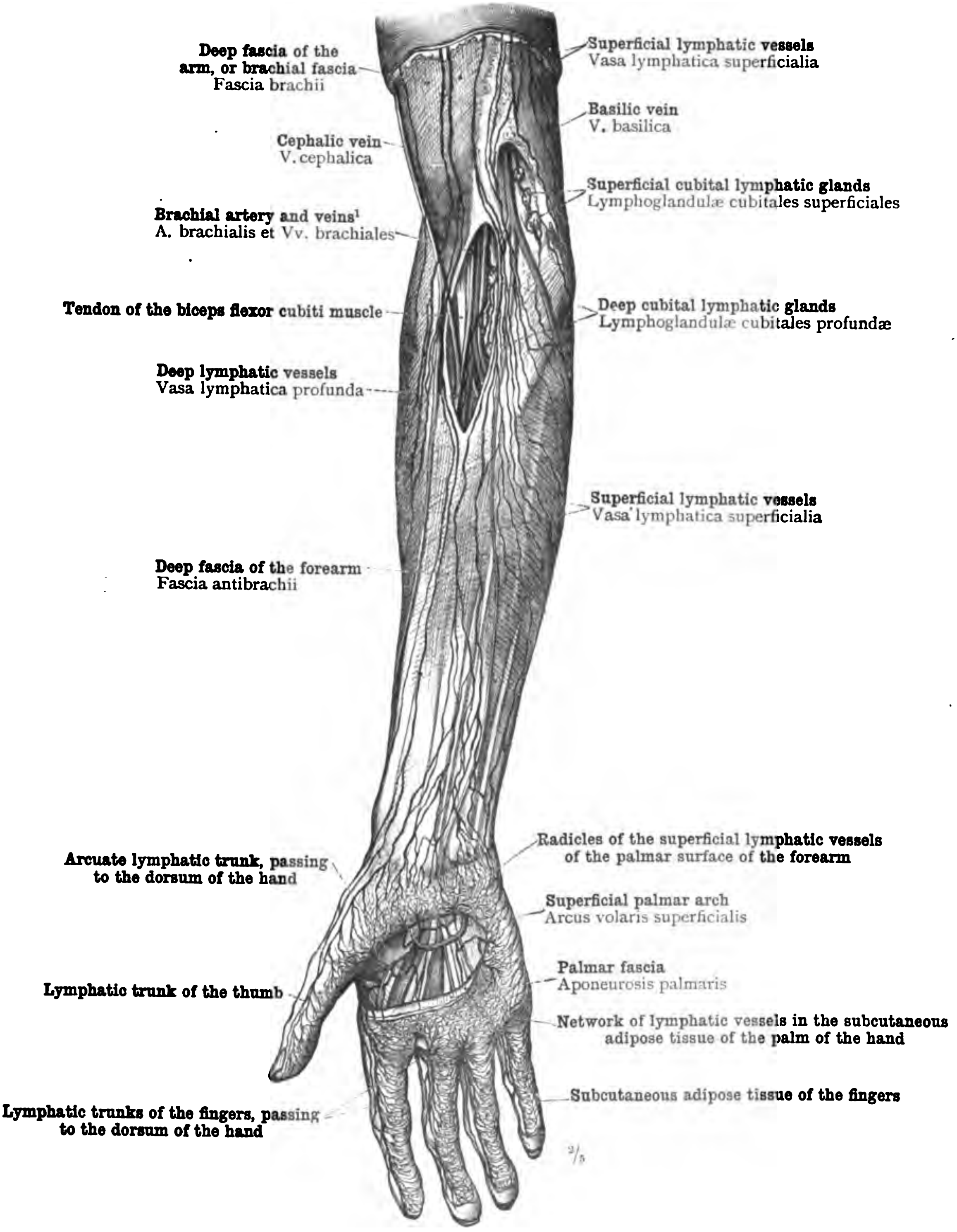
[1] See Appendix, note 306.

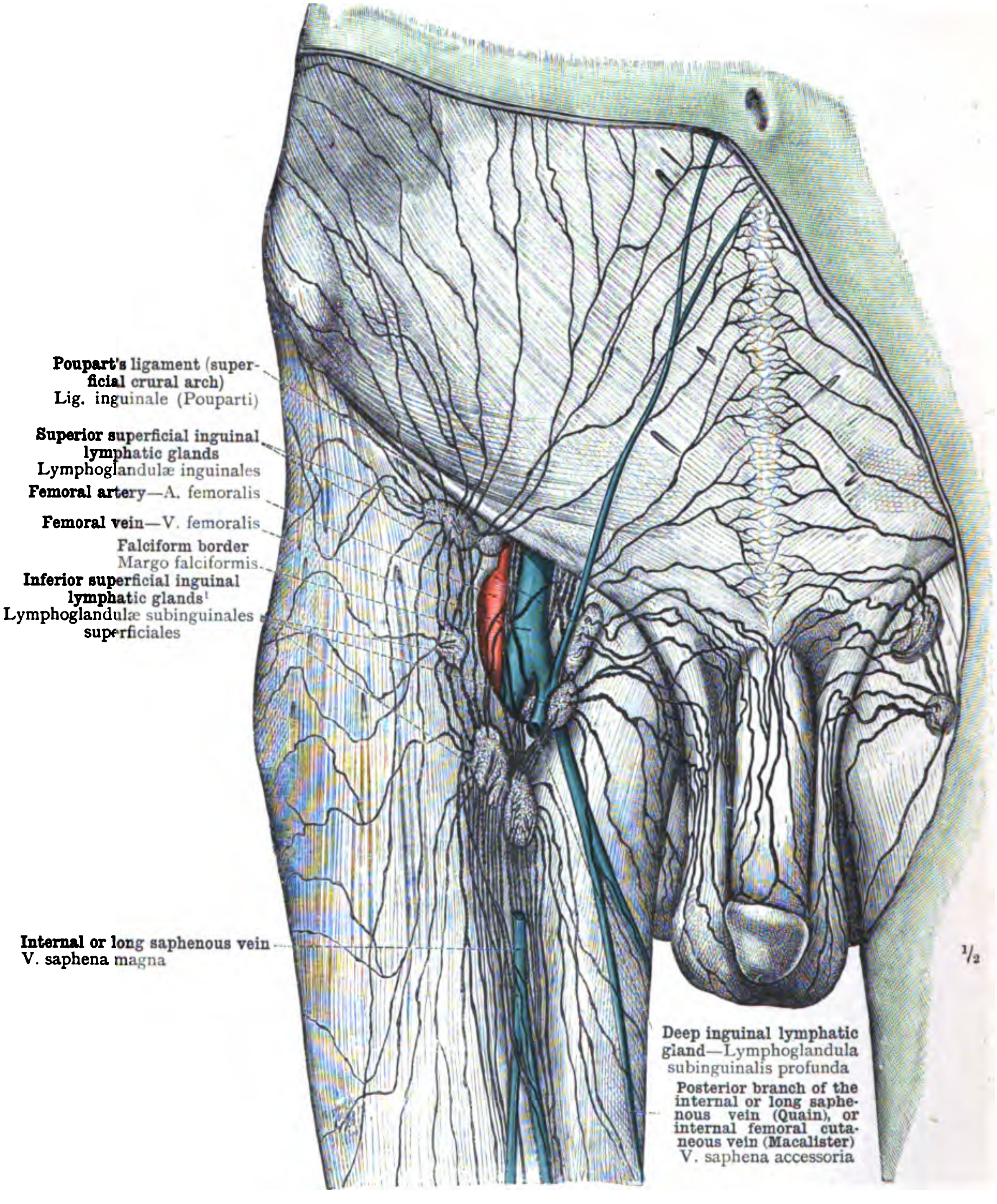
[2] *Superficial radial vein*, according to Macalister. See also Appendix, note 305.


Deep fascia of the arm, or brachial fascia
Fascia brachii
Cephalic vein
V. cephalica
Brachial artery and veins[1]
A. brachialis et Vv. brachiales
Tendon of the biceps flexor cubiti muscle
Deep lymphatic vessels
Vasa lymphatica profunda
Deep fascia of the forearm
Fascia antibrachii
Arcuate lymphatic trunk, passing to the dorsum of the hand
Lymphatic trunk of the thumb
Lymphatic trunks of the fingers, passing to the dorsum of the hand
Superficial lymphatic vessels
Vasa lymphatica superficialia
Basilic vein
V. basilica
Superficial cubital lymphatic glands
Lymphoglandulæ cubitales superficiales
Deep cubital lymphatic glands
Lymphoglandulæ cubitales profundæ
Superficial lymphatic vessels
Vasa lymphatica superficialia
Radicles of the superficial lymphatic vessels of the palmar surface of the forearm
Superficial palmar arch
Arcus volaris superficialis
Palmar fascia
Aponeurosis palmaris
Network of lymphatic vessels in the subcutaneous adipose tissue of the palm of the hand
Subcutaneous adipose tissue of the fingers
2/5

[1] Or *venæ comites of the brachial artery.*

FIG. 1118.—LYMPHATIC VESSELS OF THE PALMAR SURFACE OF THE FOREARM AND HAND. IN THE FLEXURE OF THE ELBOW (ANTECUBITAL FOSSA), THE DEEP LYMPHATIC VESSELS AND GLANDS HAVE BEEN EXPOSED BY DIVISION OF THE DEEP FASCIA.

Lymphatic Vessels of the Upper Limb.

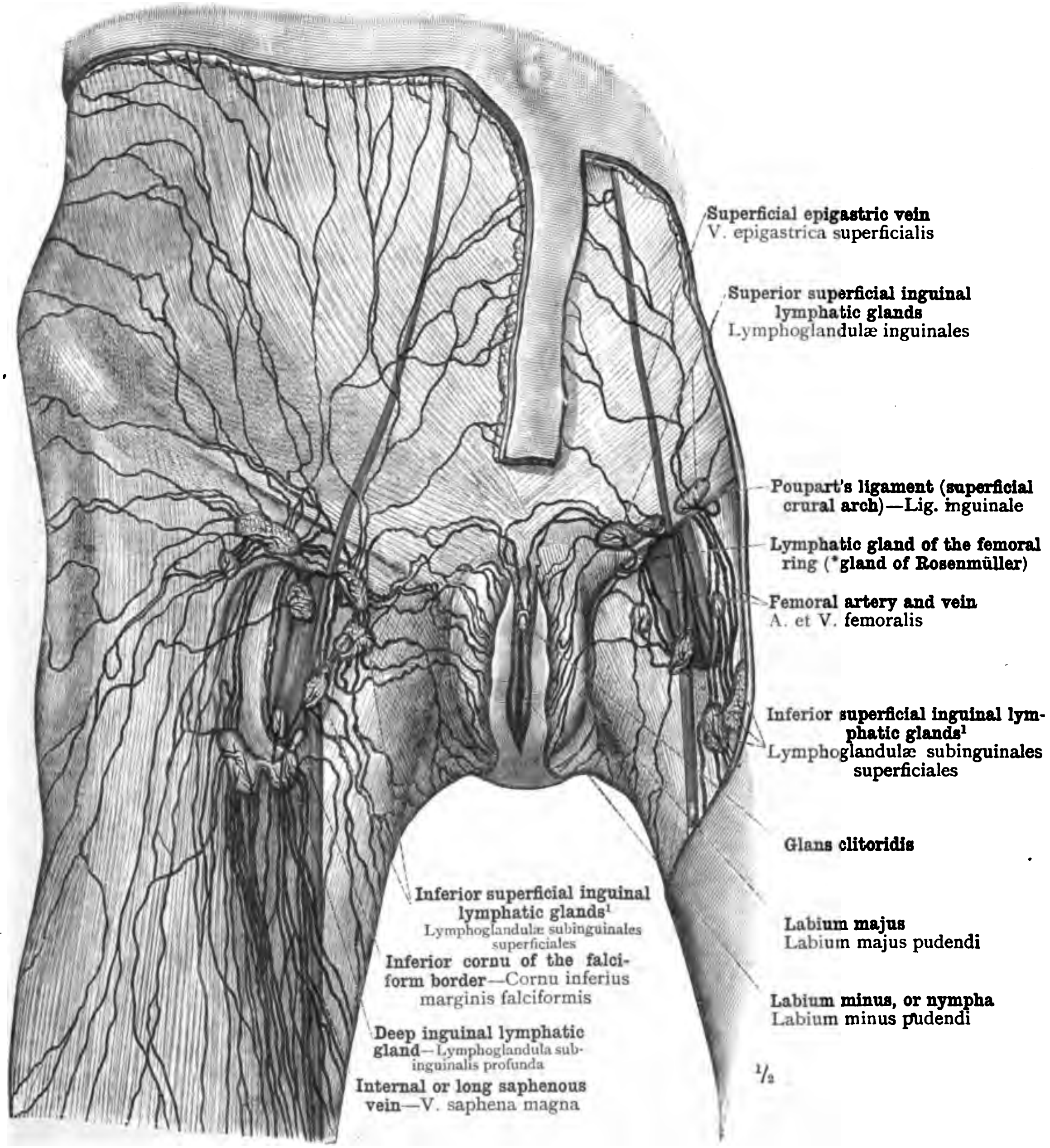

Poupart's ligament (superficial crural arch)
Lig. inguinale (Pouparti)
Superior superficial inguinal lymphatic glands
Lymphoglandulæ inguinales
Femoral artery—A. femoralis
Femoral vein—V. femoralis
Falciform border
Margo falciformis
Inferior superficial inguinal lymphatic glands[1]
Lymphoglandulæ subinguinales superficiales
Internal or long saphenous vein
V. saphena magna
1/2
Deep inguinal lymphatic gland—Lymphoglandula subinguinalis profunda
Posterior branch of the internal or long saphenous vein (Quain), or internal femoral cutaneous vein (Macalister)
V. saphena accessoria

[1] Often called the *femoral lymphatic glands.*

FIG. 1119.—THE SUPERFICIAL LYMPHATIC VESSELS, VASA LYMPHATICA SUPERFICIALIA, OF THE INGUINAL REGION, THE MALE EXTERNAL GENITAL ORGANS, AND THE ADJOINING PORTIONS OF THE THIGH AND ABDOMEN, WITH THE ASSOCIATED LYMPHATIC GLANDS; THE SUPERFICIAL INGUINAL LYMPHATIC PLEXUS.

The superior cornu of the falciform border and part of the internal or long saphenous vein were removed.

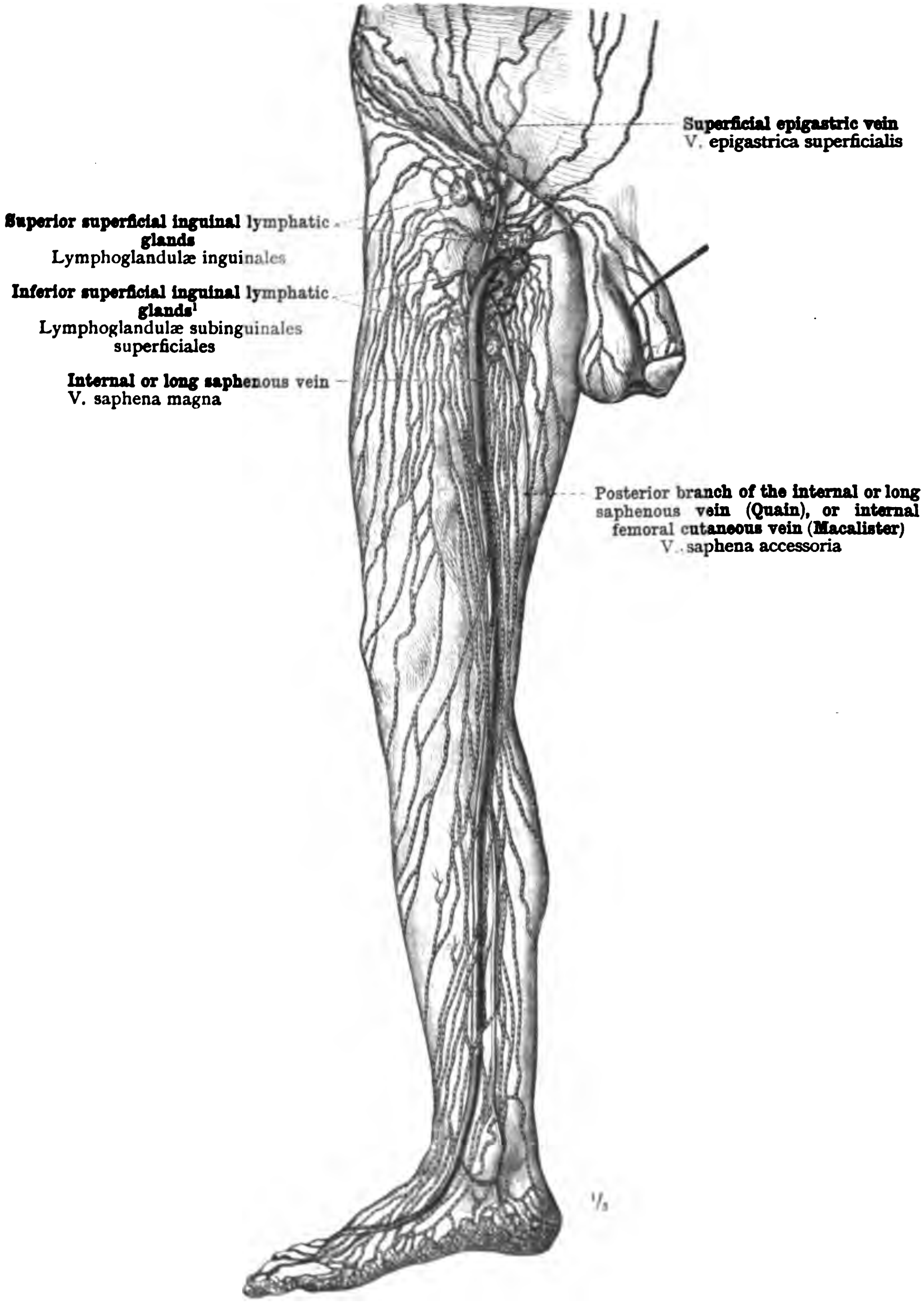
Superficial Lymphatic Vessels and Glands of the Inguinal Region and the Male External Genital Organs.


Superficial epigastric vein
V. epigastrica superficialis
Superior superficial inguinal lymphatic glands
Lymphoglandulæ inguinales
Poupart's ligament (superficial crural arch)—Lig. inguinale
Lymphatic gland of the femoral ring (*gland of Rosenmüller)
Femoral artery and vein
A. et V. femoralis
Inferior superficial inguinal lymphatic glands[1]
Lymphoglandulæ subinguinales superficiales
Glans clitoridis
Labium majus
Labium majus pudendi
Labium minus, or nympha
Labium minus pudendi
1/2
Inferior superficial inguinal lymphatic glands[1]
Lymphoglandulæ subinguinales superficiales
Inferior cornu of the falciform border—Cornu inferius marginis falciformis
Deep inguinal lymphatic gland—Lymphoglandula subinguinalis profunda
Internal or long saphenous vein—V. saphena magna

[1] Often called the *femoral lymphatic glands.*

FIG. 1120.—THE SUPERFICIAL LYMPHATIC VESSELS, VASA LYMPHATICA SUPERFICIALIA, OF THE INGUINAL REGION, THE FEMALE EXTERNAL GENITAL ORGANS, AND THE ADJOINING PORTIONS OF THE THIGH AND ABDOMEN, WITH THE ASSOCIATED LYMPHATIC GLANDS.

Superficial Lymphatic Vessels and Glands of the Inguinal Region and the Female External Genital Organs.


Superficial epigastric vein
V. epigastrica superficialis
Superior superficial inguinal lymphatic **glands**
Lymphoglandulæ inguinales
Inferior superficial inguinal lymphatic **glands**[1]
Lymphoglandulæ subinguinales superficiales
Internal or long saphenous vein
V. saphena magna
Posterior **branch of the internal or long** saphenous **vein (Quain), or internal** femoral **cutaneous vein (Macalister)**
V. saphena accessoria
1/3

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[1] Often called the *femoral lymphatic glands.*

FIG. 1121.—THE SUPERFICIAL LYMPHATIC VESSELS, VASA LYMPHATICA SUPERFICIALIA, OF THE RIGHT LOWER LIMB, THE MALE EXTERNAL GENITAL ORGANS, AND THE ANTERIOR WALL OF THE ABDOMEN, WITH THE SUPERIOR SUPERFICIAL INGUINAL LYMPHATIC GLANDS, LYMPHOGLANDULÆ INGUINALES, AND THE INFERIOR SUPERFICIAL INGUINAL LYMPHATIC GLANDS (OFTEN CALLED THE FEMORAL LYMPHATIC GLANDS), LYMPHOGLANDULÆ SUBINGUINALES SUPERFICIALES. SEEN FROM BEFORE AND THE INNER SIDE.

The lymphatic vessels were injected with metallic mercury.

Lymphatic Vessels of the Lower Limb.

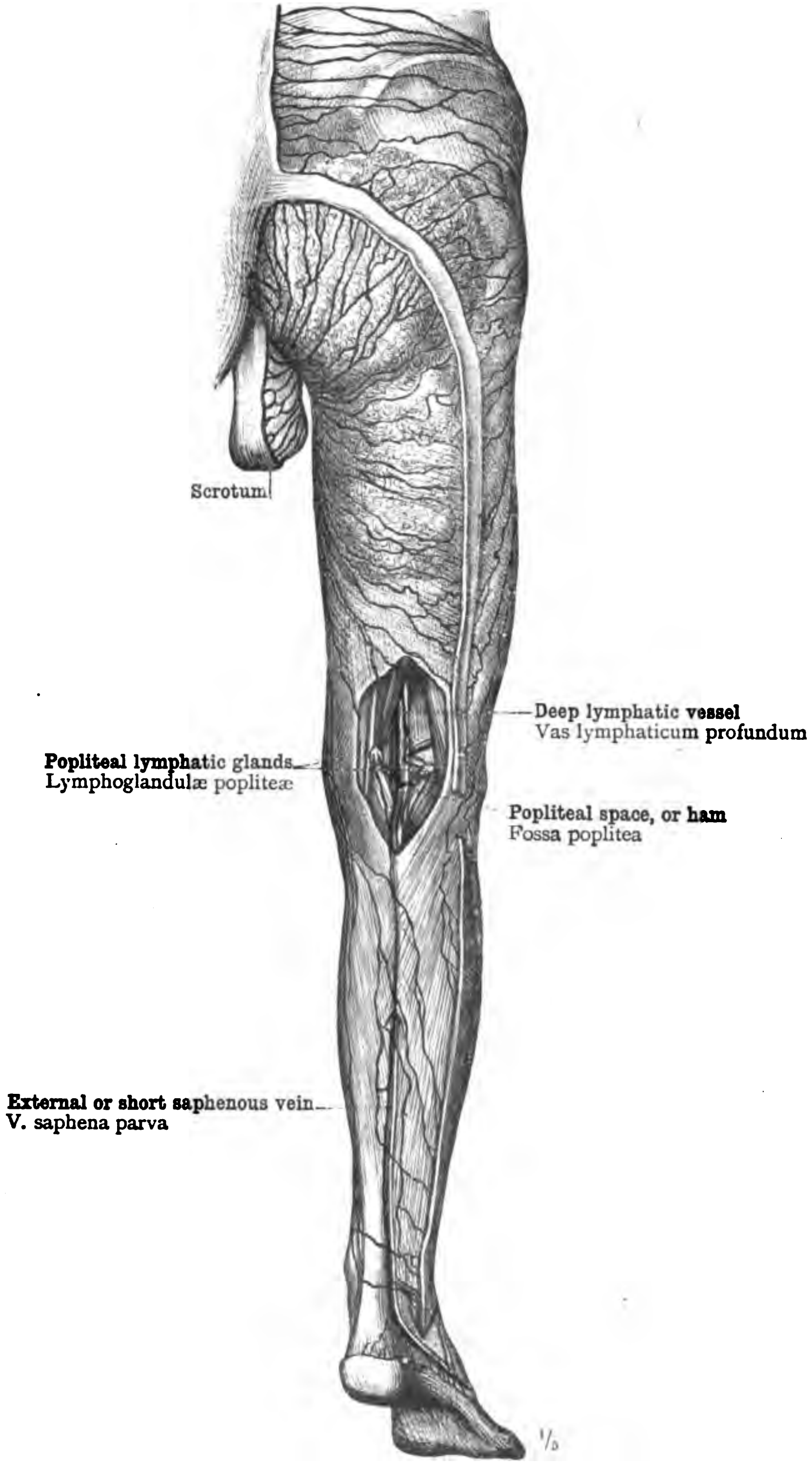
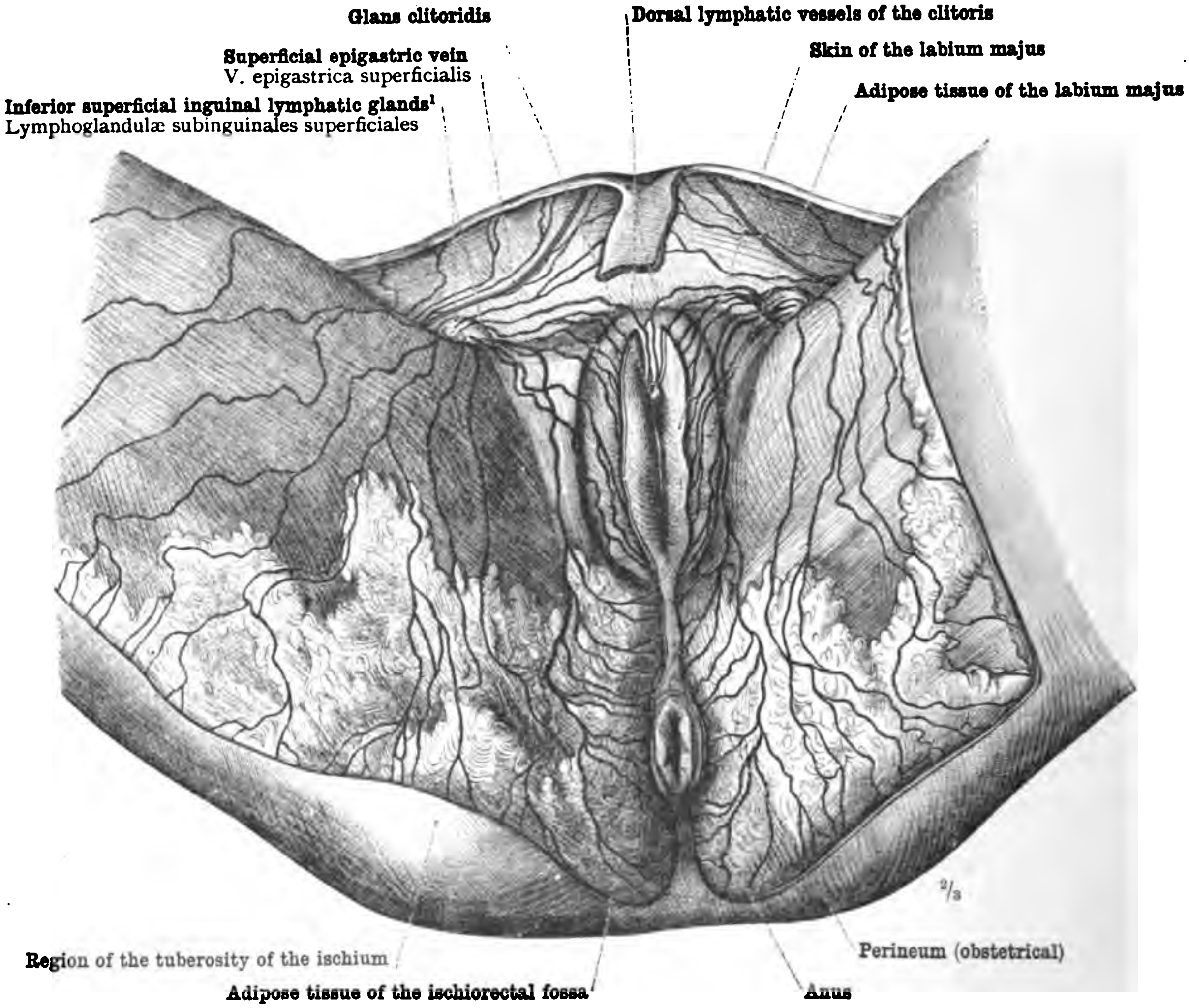


Fig. 1122.—The Superficial Lymphatic Vessels, Vasa Lymphatica Superficialia, of the Back of the Right Lower Limb, the Hip, and the Scrotum. In the Popliteal Space, or Ham, the Deep Lymphatic Vessels and Glands have been exposed by Division of the Deep Fascia.

Lymphatic Vessels of the Lower Limb.


Glans clitoridis
Dorsal lymphatic vessels of the clitoris
Superficial epigastric vein
V. epigastrica superficialis
Skin of the labium majus
Inferior superficial inguinal lymphatic glands[1]
Lymphoglandulæ subinguinales superficiales
Adipose tissue of the labium majus
²/₃
Region of the tuberosity of the ischium
Perineum (obstetrical)
Adipose tissue of the ischiorectal fossa
Anus

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[1] Often called the *femoral lymphatic glands.*

FIG. 1123.—THE SUPERFICIAL LYMPHATIC VESSELS, VASA LYMPHATICA SUPERFICIALIA, OF THE PERINEAL REGION AND THE FEMALE EXTERNAL GENITAL ORGANS.

In order to expose the dorsal lymphatic vessels of the clitoris (both in this specimen and in that depicted in Fig. 1120), the anterior commissure of the vulva was divided and the prepuce of the clitoris removed, so as to lay bare the body of that organ.

Superficial Lymphatic Vessels of the Perineal Region.

APPENDIX TO PART V.

NOTES BY TRANSLATOR

[111] (Fig. 944, p. 562.) The *ligamentum arteriosum* is a fibrous cord passing from the upper aspect of the right pulmonary artery, a little to the left of the bifurcation of the main trunk, upwards and backwards to the under side of the arch of the aorta. It is the remains of the obliterated fœtal *ductus arteriosus*. These structures are sometimes called the *ligament* and *duct of Botallo* (*Botallus*).

[112] *Sinuses of Valsalva* (Ibid.).—The pulmonary artery, like the aorta, exhibits three bulgings at its root, opposite the three *semilunar* or *sigmoid* flaps of the valve guarding its ventricular orifice, known as the *sinuses of Valsalva.* The capacity of these sinuses is greater in the case of the aorta than in the case of the pulmonary artery, and it is the aortic sinuses that are as a rule denoted when the sinuses of Valsalva are spoken of without further qualification. Macalister, indeed, uses the name *sinuses of Valsalva* only in reference to the aorta, and terms the similar structures in the pulmonary artery the *pulmonary sinuses*. Young, on the other hand, in his "Synopsis of Human Anatomy" (U.S.), denotes by the term *sinuses of Valsalva* the *pulmonary sinuses* only, and states that "the *sinus aortici* correspond to the sinuses of Valsalva on the right side;" but this is opposed to the customary usage.

[113] *Auricle and Atrium* (Ibid.).—The name *auricle* (*auricula*, little ear) was originally applied to what in England is now called the *auricular appendix*, which has a triangular pointed shape resembling that of the external ear of many mammals. The antechambers of the heart as a whole were called the *atria*. In Germany these terms are still used in their primitive signification; but in England the term *auricle* has, by metonymy, come to denote the antechamber as a whole, each *auricle* consisting of two parts: the *atrium* and the *auricular appendix*.

[114] *Arteria Coronaria* (*Cordis*) *Dextra* (Ibid.).—The word *cordis* is added to distinguish the coronary arteries of the heart from the coronary arteries of the lips and the stomach respectively. In the author's nomenclature, however, the distinction is superfluous, since the *coronary arteries of the lips* are by him named *arteriæ labiales;* and the *coronary artery of the stomach*, *arteria gastrica sinistra*. Usually, moreover, the context is sufficient guide, and the qualification unnecessary. The branches of the *right coronary artery* seen in this figure are the smaller *infundibular* branch, which ramifies over the conus anteriosus of the right ventricle; and the larger *marginal* branch, which runs down the right border to the apex of the heart. (Macalister calls these the *preventricular* and *right marginal* arteries, respectively.) The *smallest cardiac veins* correspond to the former branch, the *anterior cardiac veins* to the latter. The termination of the right coronary artery in *transverse* and *descending* branches is seen in the next figure.

[115] *Sinus Venosus and Sulcus Terminalis* (Fig. 945, p. 563).—Quain ("Anatomy," 10th ed., vol. ii., part ii., pp. 356 and 357) writes: "The main part of the auricle, that into which the great veins directly pour their blood, is commonly named *sinus venosus*, or *atrium*, to distinguish it from the auricular appendix. At the outer and posterior part of the atrium is a slight groove, the *sulcus terminalis* of His, which runs from the front of the termination of the superior to the right of the inferior vena cava, and marks off the portion of the atrium formed by the dilated end of the venous trunks (*saccus reuniens* of the embryo) from that belonging to the primitive auricle." While Quain thus identifies the *sinus venosus* with the main cavity of the right auricle, Toldt denotes by the *sinus venarum* (*cavarum*) only that portion of the cavity lying to the left of the sulcus terminalis; the meaning of the English equivalent, *sinus venosus*, should be similarly restricted, as it then denotes that portion of the cavity of the auricle corresponding to the *saccus reuniens* of the embryo.

[116] (Ibid.) The *right coronary artery* is here seen dividing into its terminal *transverse* and *descending* branches. The latter is called by Macalister the *posterior interventricular* artery. For the earlier branches of the right coronary artery, see above, note [114].

[117] (Ibid.) The *oblique vein of Marshall* runs from the *vestigial fold* (*plica venæ cavæ sinistræ*—see Fig. 974, p. 584) over the back of the left auricle to join the coronary sinus. It has no valve over its orifice; and the vein, together with the coronary sinus, is regarded as the vestige of the left superior vena cava of the fœtus (see note [122] below).

[118] **Corona Cordis* (Ibid.).—The author describes the heart as divided by the auriculoventricular groove into two parts: the *Herzkrone* (*corona cordis*), consisting of the two auricles with the intrapericardial portions of the great vessels; and the *Herzkegel* ("cone of the heart"—no Latin equivalent is given), consisting of the two ventricles. No English equivalent for these terms is used by Quain or Macalister, the *base of the heart* being not a portion, but one of the surfaces of the organ.

[119] **Umbilical Ring* (Fig. 970, p. 580).—"The small aperture in the anterior abdominal wall by means of which the umbilical vessels pass into the umbilical cord, *annulus umbilicalis*, closes during the days immediately following birth" (Von Langer and Toldt, *op. cit.*, p. 406). In England the term *umbilical ring* is seldom employed, the term *umbilicus* denoting that structure as well as the *navel proper*, the permanent remnant of the umbilical cicatrization. The author's terminology, however, is more accurate.

[120] *Hypogastric Artery* (Ibid.).—In England this term denotes the intra-abdominal portion of the umbilical artery of the fœtus, which undergoes obliteration after the cessation of the placental circulation, and is represented in the adult by a fibrous cord. The author's *arteria hypogastrica* and *vena hypogastrica*, on the other hand, denote the *internal iliac artery* and *vein* of English anatomists.

[121] *Bulbus Venæ Jugularis* (Fig. 972, p. 582).—The author recognises *two bulbs* of the internal jugular vein, a *superior* and an *inferior*. English anatomists, when speaking of the *bulb* or *sinus of the internal jugular vein*, denote the *bulbus superior* of Toldt, only. This dilatation occupies the large posterior compartment of the

jugular foramen (see Fig. 1080, p. 685). According to Langer, however, the bulb does not belong to the internal jugular vein, but is to be regarded as the convexity of a sharp bend formed by the lateral sinus before it terminates in the vein. The *bulbus venæ jugularis inferior* of Toldt is the dilated inferior extremity of the internal jugular vein, just above its junction with the subclavian vein.

[122] *Plica Venæ Cavæ Sinistræ* (Fig. 974, p. 584).—This is a fold of pericardium, called by Marshall the *vestigial fold*, lying between the left pulmonary artery and the subjacent pulmonary vein. It encloses a vestige of the left superior vena cava (*duct of Cuvier*) of the fœtus in the form of a strand of fibrous tissue. From its inferior extremity the *oblique vein of Marshall* runs across the back of the left auricle to open into the coronary sinus. See note [117] above.

[123] **Jugular Venous Arch* (Ibid.).—This term is not used by Quain or Macalister. It is applied by the author to the *communicating branch* in the *suprasternal space* (*Burns's space*) between the two *anterior jugular veins*, and to those portions of the *anterior jugular veins* below the *communicating branch* which run outwards on each side behind the origin of the sternocleidomastoid muscle to open into the lower end of the *external jugular vein*. A transverse venous arch is thus formed at the root of the neck between the *external jugular veins*.

[124] (Fig. 975, p. 585).—In the normal development of the great veins, it is this communicating branch, often called the *transverse jugular vein*, which forms the greater part of the definitive left innominate vein.

[125] *Angulus Venosus* (Ibid.).—The name **venous angle, right*, and *left*, is given by the author to the junction on the respective sides of the neck of the internal jugular and subclavian veins, normally to form the innominate veins; in the specimen shown in Fig. 975, however, to form the superior vena cava (right and left).

[126] *Lumbar Arteries* (Fig. 981, p. 592).—These are usually five in number on each side, of which the upper four regularly arise from the aorta, and sometimes the fifth also; but quite often this artery, *arteria lumbalis ima*—the *lowest lumbar artery*—is, as in the present specimen, a branch of the *middle sacral artery*, or *sacral aorta*.

[127] (Ibid.) The *middle sacral artery* represents the caudal prolongation of the aorta met with in lower mammals, and its lateral branches are homologous with the intercostal and lumbar arteries; hence the name *sacral aorta*, used by Macalister. According to the terminology of this author (*op. cit.*, p. 428), "At the sacrococcygeal joint the artery becomes *middle coccygeal* or *caudal*, and is continued downwards to the tip of the coccyx, where its terminal branch passes outwards to end in the coccygeal glomerulus." In Toldt's nomenclature, however, as in that of Quain, the *middle sacral artery* (*arteria sacralis media*) retains its name unchanged up to its termination in the *coccygeal gland* or *glomerulus* (*glomus coccygeum*). This structure is shown in Fig. 926, p. 534, Part IV.

[128] *Sinus Maximus Aortæ* (Ibid.).—The space between the dotted lines pointing to the *ascending aorta* and the *arch of the aorta* in Fig. 981 is occupied by the *great sinus of the aorta*, which is not mentioned by the author. The aorta is first of a trefoil shape, owing to the presence of the *sinuses of Valsalva*, then becomes circular, then elliptical, the upper part of the ascending aorta and the commencement of the arch being dilated to form the *great sinus*, the long axis of whose ellipse is directed backwards and to the left. The dilatation varies in size in different bodies, is usually better marked in elderly persons, and occasionally is not to be detected. Before the *aortic isthmus*, the lumen of the tube again becomes circular. See also Fig. 951, p. 569.

[129] *Spermatic Artery* (Ibid.).—This artery is called by the author *arteria spermatica interna*, to distinguish it from the *arteria spermatica externa*—the *cremasteric artery* of English anatomists.

[130] *Arteria Hepatica Propria* (Fig. 983, p. 594).—According to the author's nomenclature, the hepatic artery breaks up into a *descending* division, *arteria gastroduodenalis*, and an *ascending* division, *arteria hepatica propria*. The latter gives off the *arteria gastrica dextra* (pyloric artery), and then breaks up into a *ramus sinister* and *ramus dexter* (the left and right hepatic arteries). The term *arteria hepatica propria* has no English equivalent, the artery, from its origin from the cœliac axis to its division into right and left hepatic arteries, being called simply the *hepatic artery*.

[131] *Pyloric Artery* (Ibid.).—This, the *arteria gastrica dextra* of the author, is called by Macalister the *superior pyloric artery*, to distinguish it from a small branch, usually unnamed, of the *gastroduodenal artery*, but called by him the *inferior pyloric artery*.

[132] *Ramus Costalis Lateralis* (Fig. 988, p. 599).—"Among the branches of the internal mammary artery, a not unimportant and somewhat common variety is the existence of the *ramus costalis lateralis;* this arises just above the first rib from the internal mammary trunk, runs obliquely downwards and backwards on the inner surface of the wall of the thorax as far as the fifth or sixth rib, and gives offsets in the intercostal spaces which anastomose with branches of the intercostal arteries" (Von Langer and Toldt's "Anatomy," p. 513). Quain (*op. cit.*, vol. ii., p. 429) calls this the *lateral* branch of the internal mammary artery, and states that when present it runs "about midway between the spine and sternum, or somewhat further forward." Macalister calls it the *lateral infracostal* branch, and remarks: "The existence of this vessel must be remembered in paracentesis. I have seen it of enormous size in cases of obliteration of the dorsal aorta from the pressure of an intrathoracic tumour" ("Anatomy," p. 554).

[133] *Inner Mammary Branches* (Ibid.). — "The perforating branches (of the internal mammary artery) of the third, fourth, and fifth spaces in the female give *rami mammarii* to the breast" (Von Langer and Toldt, *op. cit.*, p. 513). In Fig. 988, it is the *anterior perforating branch* of the *second* right space that furnishes the largest of these *mammary branches*.

[134] (Ibid.) *The origin of the branches of the subclavian artery* is so variable that it is difficult to decide which arrangement is to be regarded as normal. Von Langer and Toldt describe the *thyroid axis* as supplying four branches: the *inferior thyroid*, the *ascending cervical*, the *superficial cervical*, and the *suprascapular*. Quain states that the *thyroid axis* divides into "the *inferior* or *ascending thyroid*, the *suprascapular*, and a third branch, which is either the *transverse cervical*, or one of the branches into which that artery, when present, divides—viz., the *superficial cervical*" (the other being the *posterior scapular*). Here, however, we see a trunk, called by Toldt the *superficial cervical*, dividing into the *transverse cervical* and (presumably) the *posterior scapular*. Macalister uses the name *posterior scapular* as synonymous with *transverse cervical*, and regards the common origin of the *superficial cervical* and the *posterior scapular* as one of the most frequent arrangements. (See also note [135] below.)

[135] (Ibid.) According to Quain's nomenclature, this trunk would be called the *transverse cervical*, while of the two branches into which it divides, the lower, called here *transversa colli*, is the *superficial cervical*, the upper, apparently, the *posterior scapular*. (See also note [134] above and notes [172] and [206] below.)

[136] (Ibid.) According to the usual English nomenclature, this

artery is still known as the *subscapular* after the *dorsal scapular* branch has been given off. Macalister, however, follows the Continental usage in calling it the *thoracicodorsalis artery*. (See note [203] below.)

[137] *Outer Mammary Branches* (Ibid.).—Those shown here are the *anterior divisions* of the *lateral cutaneous* (*pectoral*) *branches* of the *intercostal arteries*. (For the origin of these branches, see Fig. 978, p. 589.) Other *outer mammary branches* are normally supplied by the *long thoracic artery* (see Fig. 1017, p. 628), which for this reason is sometimes called the *external mammary artery*.

[138] *Scrotal and Labial* (*or Vulval*) *Arteries, Anterior and Posterior* (Ibid.).—As these names are not employed by Quain or Macalister, some explanation is required of the manner in which they are applied by the author. The *superficial* or *long perineal artery* (see notes [147] and [149] below) terminates by dividing in the anterior half of the perineum (in the triangular intermuscular space beneath Colles's fascia) by dividing into two long slender branches which proceed forwards as the *arteriæ scrotales posteriores*, in the male, to supply the posterior half of the scrotum, and as the *arteriæ labiales posteriores*, in the female, to supply the hinder part of the vulva. The *superior* and *inferior external pudic arteries* (called by Macalister *superior* or *superficial pubic* and *inferior pubic*, respectively) are distributed chiefly to the front of the scrotum, in the male, and of the vulva, in the female, by means of terminal branches, *arteriæ scrotales anteriores* and *arteriæ labiales anteriores*, respectively, which anastomose with the posterior scrotal and posterior labial (or vulval) arteries just described. The arteries are accompanied by veins similarly named by Toldt, the *posterior scrotal* (or *labial*) *veins* being tributaries of the *superficial* or *long perineal vein;* and the *anterior scrotal* (cr *labial*) *veins* opening into the *external pudic veins*.

[139] *Internal Pudic Artery* (Fig. 989, p. 600).—This is called by Macalister the *pudic artery* without qualification, since the small branches of the epigastric artery commonly denominated *external pudic* are by him termed the *pubic arteries* (see note [138] above).

[140] *Pelvic Diaphragm* (Ibid.).—As used by English anatomists, this denotes the *levator ani* and the *coccygeus* or *levator coccygis muscles;* the author, however, includes under this designation, in addition to the muscles themselves, the *rectal fascia* covering their upper surface (*fascia diaphragmatis pelvis superior*) and the *anal fascia* covering their lower surface (*fascia diaphragmatis pelvis inferior*). See Part IV. of this work, Fig. 881, p. 513.

[141] *Arteria Penis* (Ibid.).—The name of **artery of the penis* is given by the author to the distal portion of the *internal pudic artery* of English anatomists, after it has left the ischiorectal fossa, and before it bifurcates into the *artery of the corpus cavernosum* and the *dorsal artery of the penis*. The *artery of the bulb* is derived from this portion of the trunk.

[142] *Diaphragma Urogenitale* (Ibid.). — The name of *urogenital diaphragm* is given by the author to the *triangular ligament of the urethra* of English anatomists, including the muscle contained between the two layers of that ligament—the *constrictor* or *compressor urethræ*. (See Appendix to Part IV. of this work, note [99].)

[143] *Inferior Vesical and Middle Hæmorrhoidal Arteries* (Ibid.).—Quain gives *vesicoprostatic artery* as an alternative name for the *inferior vesical artery* in the male. A slender offset is seen in Fig. 989 passing to the rectum from the lower part of this vessel, and no other branch is shown in the figure representing the *middle hæmorrhoidal* or *middle rectal artery*, which is, however, usually much larger, and may be derived either from the *inferior vesical* or from the *internal pudic artery*.

[144] *Inferior Vesical Artery* (Fig. 990, p. 601).—Quain gives *vesicoprostatic artery* as an alternative name for this artery in the male.

[145] *Alcock's Canal* (Ibid.).—In the ischiorectal fossa the internal pudic artery runs in a canal in the substance of the obturator fascia, known as *Alcock's canal*. In Fig. 990 this canal has been opened to show the artery, except for a distance of about a quarter of an inch in front. For the nomenclature of the internal pudic artery, see note [139] above.

[146] (Ibid.) Quain gives *external hæmorrhoidal* as an alternative name for this artery; Macalister calls it the *anal artery*.

[147] *Arteriæ Perinei* (Ibid.).—English anatomists usually describe two *perineal* branches of the *internal pudic artery:* the *superficial* or *long perineal artery*, which arises near the front of the ischiorectal fossa, passes either superficial to or beneath the transversus perinei (superficialis) muscle, and runs forward in the triangular intermuscular space beneath Colles's fascia, to terminate in the *posterior scrotal* or *posterior labial* branches and anastomose with the *anterior scrotal* or *labial* offsets of the external pudic branches of the femoral artery (see note [138] above); and the *transverse perineal artery*, generally arising in common with the preceding, but sometimes a distinct branch, which runs inwards towards the central point of the perineum, and supplies the parts between the anus and the bulb of the urethra. Toldt calls these two branches indifferently the *arteriæ perinei*.

[148] *Ligamentum Umbilicale Laterale* (Ibid.).—After the cessation of the placental circulation at birth, the hypogastric artery becomes impervious from the side of the bladder up to the umbilicus, and is converted into a fibrous cord. In England this is usually spoken of as the *obliterated hypogastric artery*, but the author calls it the **external umbilical ligament* (in contradistinction to the **median umbilical ligament* or *urachus*). The fold of peritoneum which covers this structure as it runs along the posterior surface of the anterior abdominal wall is called by the author *plica umbilicalis lateralis*, the *external umbilical fold;* but in England it is more often known by the name of the *hypogastric fold*. See Fig. 635, p. 386, and Fig. 636, p. 387, in Part III. of this work.

[149] **Perineal Artery* (Fig. 991, p. 602).—The short trunk called by the author *arteria perinei* is seen to divide almost immediately into a posterior branch, the *transverse perineal artery*, and an anterior branch, the *superficial* or *long perineal artery*. See note [147] above.

[150] (Ibid.) Quain gives *external hæmorrhoidal* as an alternative name for this artery; Macalister calls it the *anal artery*.

[151] (Ibid.) The *superficial layer* of the *obturator fascia* where it covers the *internal pudic artery* has been removed throughout the whole length of *Alcock's canal*. See note [145] above.

[152] *Urethral Artery* (Fig. 992, p. 603).—This may arise (as here) from the *artery of the bulb*, or separately from the trunk of the *internal pudic artery*.

[153] *M. Transversus Perinei Profundus* (Ibid.).—For the nomenclature of this muscle, see Appendix to Part IV., note [101].

[154] *Arteriæ Cruris Penis* (Ibid.).—In addition to the principal *artery of the corpus cavernosum* (*arteria profunda penis*), small offsets, usually two or three in number, pass to the crus from the trunk of the *internal pudic artery*, just behind its terminal bifurcation. These are left unnamed in most English works on anatomy, but may be called *arteries of the crus penis*.

[155] (Fig. 993, p. 604.) Just behind the *superficial* or *long perineal artery*, running transversely inwards to the space between the anus and the vaginal orifice (*i.e.*, the *obstetrical perineum*) is the *transverse perineal artery* of English anatomists. (See note [147] above.)

[156] *Arteria Clitoridis* (Ibid.).—Just as, in the male, the *internal pudic artery* of English anatomists becomes, in the author's

nomenclature, the *artery of the penis* as soon as it leaves the ischiorectal fossa (see note [141] above), so, in the female, it becomes the *artery of the clitoris*, which gives off the *artery of the bulb* (*arteria bulbi vestibuli*—see Fig. 994, p. 605, and Fig. 996, p. 607) to the vaginal bulb or bulb of the vestibule, and terminates by dividing into the *artery of the corpus cavernosum of the clitoris* (*arteria profunda clitoridis*) and the *dorsal artery of the clitoris* (*arteria dorsalis clitoridis*).

[157] *Superficial or Long Perineal Artery* (Fig. 994, p. 605).—In the female, this artery is considerably larger than in the male, as will be seen by a comparison of Fig. 994, p. 605, with Fig. 991, p. 602. The foremost of the branches indicated by the author in Fig. 994 as *arteriæ hæmorrhoidales inferiores* represents the *transverse perineal artery* of English anatomists—see notes [147] and [149] above.

[158] (Ibid.) Represented here by several twigs, instead of the single stem normally given to the anus by the internal pudic artery, and called by Macalister the *anal artery*. But see also the second sentence in note [157] above.

[159] *Bulbus Vestibuli* (Ibid.).—Regarding the nomenclature of this structure, see Appendix to Part IV., note [91].

[160] *Vaginal Arteries* (Fig. 995, p. 606).—The arrangement of these in this specimen is worthy of note. The *uterine artery*, after crossing beneath the ureter and then running parallel with it for a considerable distance, gives off two branches which pass in front and behind the ureter, respectively, and then turn upwards to unite again into a considerable branch of the *internal pudic artery*. From the two arches thus formed, numerous small offsets are given to the vagina and the lower part of the bladder. For an account of the normal arrangement of the *vaginal arteries*, see note [163] below.

[161] (Ibid.) The *left iliolumbar artery* in this specimen is very much smaller than usual, and arises from the common iliac artery, instead of, as is normally the case, from the internal iliac prior to its breaking up into anterior and posterior divisions.

[162] *Arteriæ Vesicales* (Ibid.).—The arteries called *vesical* in Fig. 995 are the terminal offsets merely, not the *vesical arteries* proper. No *superior vesical artery* is depicted in this specimen; and the *inferior vesical artery* (or *vesicovaginal artery*) is represented by the branch of the *internal pudic artery* which contributes to form the arterial arches mentioned in note [160] above.

[163] *Vaginal Arteries* (Fig. 997, p. 608).—The upper part of the vagina (with the cervix uteri) is supplied by a special branch of the *uterine artery*, and it is this branch which in the left side of Fig. 997 is by the author denominated the *vaginal artery*. The lower part of the vagina is separately supplied. In the right side of Fig. 997 the author depicts *vaginal arteries* for this region arising from the *internal pudic artery*; in Fig. 995, p. 606, a somewhat similar arrangement is shown; while in Fig. 1074, p. 677, a larger branch for the lower part of the vagina arises in common with the *internal pudic*. According to Quain ("Anatomy," 10th ed., vol. ii., part ii., p. 474), "the *vaginal artery* (*vesicovaginal*) in the female corresponds to the *inferior vesical artery* (*vesicoprostatic*) in the male. Arising from the *anterior division* of the *internal iliac*, or frequently from the uterine artery, it descends and ramifies upon the vagina, sending at the same time offsets to the lower part of the bladder, to the bulb of the vestibule, and to the contiguous part of the rectum. It anastomoses behind the vagina with the corresponding artery of the opposite side." The fact is that the vagina is normally supplied with blood from both the sources mentioned, the branch from the *uterine* (which might be termed the *superior vaginal artery*) and the branch from the *inferior vesical artery* (which might be termed the *inferior vaginal artery*) varying inversely with one another in size. In Fig. 997 is shown a slender vertically disposed artery occupying the median line of the posterior surface of the vagina; this is often much larger than in the specimen here figured, being supplied by offsets from both the *superior* and the *inferior vaginal arteries*, and is termed the *azygos artery of the vagina*. It is well shown in a plate by Hyrtl, reproduced as plate vi. of Hart and Barbour's "Gynecology," 3rd ed., 1886, facing p. 68.

[164] (Fig. 998, p. 610.) The *ophthalmic artery* terminates by dividing into the *frontal* and *nasal* branches. Macalister follows the Continental terminology in speaking of the latter as the *arteria dorsalis nasi*.

[165] *Angular Artery* (Ibid.).—The *facial artery* is described by English anatomists as terminating usually by division into the *lateral nasal* and *angular arteries*, the latter being the slender twig which inosculates at the inner side of the orbit with the *nasal branch* of the *ophthalmic artery*. Toldt, however, gives the name of *arteria angularis* to the *facial* as soon as it has given off the *coronary artery of the upper lip*, and the *lateral nasal artery* is not mentioned by him. The last-named artery in the present specimen is represented by two or three slender twigs seen ramifying on the side of the nose.

[166] *Facial Artery* (Ibid.).—Quain gives *external maxillary*, and Macalister *external mandibular*, as an alternative name for this artery; but it is so rarely in England called anything but the *facial artery* that I have not thought it necessary to mention these synonyms in the text. Conversely, the *internal maxillary* is sometimes, though rarely, spoken of as the *deep facial artery*.

[167] (Ibid.) The *hyoid branch* of the *lingual artery* usually runs along the upper border of the hyoid bone (in the figure, however, along the outer side of the great cornu), and is called by Macalister the *suprahyoidean artery*.

[168] (Ibid.) Very often called the *temporal artery*, without qualification. It has, however, to be distinguished from the *anterior* and *posterior deep temporal branches* of the *internal maxillary artery*, and from its own *middle deep temporal* (*middle temporal*) branch.

[169] *Sternocleidomastoid Artery* (Ibid.).—This is described by Von Langer and Toldt as a special branch arising from the posterior side of the *external carotid artery* above the hyoid bone, and arching downwards and outwards to enter the inner side of the sternocleidomastoid muscle. It is described also by Macalister, but not by Quain. It varies inversely in size with the *sternocleidomastoid branches* of the *occipital* and *superior thyroid arteries*, and is sometimes absent.

[170] *Acromial Rete* (Ibid.). — This name is sometimes given to the arterial network formed on the upper surface of the acromion by anastomosing branches of the *acromiothoracic*, *suprascapular*, and *posterior circumflex arteries*. I may add that the word *rete* in this section of the "Atlas" is used without qualification only in speaking of *arterial* retia. The *venous* retia are always distinguished by the qualifying adjective.

[171] *Arteria Labialis Inferior* (Fig. 999, p. 611).—Macalister describes the *inferior labial artery* as dividing into two branches: an upper, the *inferior coronary artery*, which runs near the free margin of the lower lip; and a lower, the *superficial mental artery*. Quain mentions the *inferior labial artery* and the *coronary artery of the lower lip* as being sometimes distinct branches of the *facial artery*, but sometimes arising in common from that artery.

[172] *Arteria Transversa Colli* (Ibid.).—Fig. 999 shows what the author describes as the normal distribution of the branches of the subclavian artery, in which the *superficial cervical artery* arises from the *thyroid axis*, while the *transverse cervical artery*, arising

separately from the *subclavian* trunk, terminates by dividing into *ascending* and *descending branches*, the former running upwards among the muscles of the neck to anastomose with the *cervical* or *descending branch of the occipital artery* (see note [10], p. 611), the latter becoming the *posterior scapular artery*. In Macalister's terminology the *ramus ascendens* is called the *cervical branch* of the *transverse cervical* or *posterior scapular artery*. The artery in question (*ramus ascendens*) has no regular place in Quain's terminology, for that author describes a *transverse cervical artery* from the *thyroid axis*, dividing into *superficial cervical* and *posterior scapular arteries*, as the most usual arrangement. In his account of the *varieties*, however, of the branches of the subclavian artery, Quain states that "The transverse cervical branch of the thyroid axis not infrequently consists solely of the superficial cervical artery; and it often happens that the vessel derived from the thyroid axis is very small, and represents only in part the superficial cervical artery, a large vessel being given off from the second or third part of the subclavian, and dividing near the levator anguli scapulæ into two branches, of which one ascends and represents the larger portion of the superficial cervical artery, while the other forms the posterior scapular" (*op. cit.*, vol. ii., p. 427). In this *variety* we have the arrangement described by Toldt as *normal*. See also notes [134] and [135] above and note [5] to p. 629.

[173] *Cricothyroid Artery* (Fig. 1000, p. 612).—Called by Macalister the *inferior laryngeal branch* of the *superior thyroid artery*. This artery is endangered in the operation of laryngotomy.

[174] *Superior Phrenic Arteries* (Ibid.).—Several branches to the upper surface of the diaphragm are supplied by the *internal mammary artery*. I. The *comes nervi phrenici* of English authors, called by Toldt *arteria pericardiophrenica*, shown here on both sides, accompanies the phrenic nerve, and supplies *pericardial* as well as *phrenic* branches. Quain gives *superior phrenic* as an alternative name for this artery. II. The *internal mammary* terminates by dividing into *superior epigastric* and *musculophrenic branches*, the latter giving off the three lowermost *anterior intercostal arteries* as well as supplying the diaphragm. III. On the right side of Fig. 1000, the author shows another branch supplied to the diaphragm by the internal mammary artery, and this he names *arteria phrenica superior*.

[175] *Thymic Artery* (Ibid.).—This small offset, which in the adult supplies the remains of the thymus gland, is one of the *anterior mediastinal branches* of the *internal mammary artery*.

[176] *Posterior Meningeal Artery* (Fig. 1001, p. 613).—This name is, in England, more often given to the *meningeal* branch of the *vertebral artery* (see Fig. 1003, p. 615, and Fig. 1007, p. 619) than to the *meningeal* branch of the *ascending pharyngeal artery*. The name is, however, equally applicable to both; and, in fact, the *ascending pharyngeal* usually supplies the dura mater with a larger vessel than that derived from the *vertebral artery*.

[177] *Costocervical Axis* (Ibid.).—This name for the trunk by which the *superior intercostal* and the deep *cervical arteries* usually arise in common from the second part of the subclavian artery is used by Macalister, but not by Quain.

[178] **Deep Branch of the Ascending Cervical Artery* (Fig. 1003, p. 615).—"A very variable offset of the *ascending cervical artery*, known as the **ramus profundus*, passes backwards to the deep muscles of the back of the neck" (Von Langer and Toldt, *op. cit.*, p. 512). Neither Quain nor Macalister distinguishes this branch by name from the other *muscular* offsets of the *ascending cervical artery*.

[179] *Lachrymal Gland* (Fig. 1004, p. 616).—Regarding the distinction made by the author, and by some English anatomists also, between the two portions of this gland, named respectively *superior* and *inferior lachrymal gland*, see note [1] to p. 911 in Part VI. of this work.

[180] **Arteria Labialis Inferior* (Ibid.).—The upper of the two vessels denoted in Fig. 1004 by the name of *inferior labial artery* is called by Quain the *coronary artery of the lower lip*; and by Macalister, the *inferior coronary artery*. The lower of the two is itself the *inferior labial artery* in Quain's nomenclature, whilst Macalister calls it the *superficial mental artery*. See note [171] above.

[181] *Rami Gingivales Superiores* (Fig. 1005, p. 617).—As is well shown in the figure, the *superior gingival branches* are offsets of an anastomotic arch lying below the malar process on the zygomatic and anterior or facial surfaces of the superior maxillary bone, this arch being formed behind by the *posterior* (*superior*) *dental* (*or alveolar*) *artery*, and in front by a branch of the *infra-orbital artery*.

[182] *Ramus Tonsillaris* (Ibid.).—In this preparation (Figs. 1005 and 1006) and in the two next following (Figs. 1007 and 1008), the *inferior or ascending palatine artery* furnishes a *tonsillar branch*. Sometimes, however, this branch is wanting, and a separate *tonsillar artery* arises from the *facial* trunk.

[183] *Arteriæ Tympanicæ* (Ibid.).—Four *tympanic arteries* are described in Von Langer and Toldt's "Anatomy": The *anterior tympanic*, derived from the *deep auricular branch* of the *internal maxillary artery*; the *posterior tympanic*, a branch of the *stylomastoid artery*, which is itself derived from the *posterior auricular artery*; the *superior tympanic*, derived from the *middle* or *great meningeal artery*; and the *inferior tympanic*, derived from the *ascending pharyngeal artery*. By Quain these are termed the *tympanic branches* (without further qualification) of their respective trunks. The *petrosal* or *Fallopian branch* of the *middle* or *great meningeal* and the *tympanic branch* furnished by the *internal carotid artery* in the carotid canal also supply the tympanum. By their anastomoses the tympanic vessels form a vascular circle round the margin of the membrana tympani. The *anterior tympanic artery* is seen on p. 617, the *superior tympanic artery* on p. 621.

[184] *Arteriæ Ethmoidales et Arteriæ Nasales Anteriores Septi* (Fig. 1006, p. 618).—These small branches of the *ophthalmic artery* are variously named in England. *Internal nasal* is an occasional synonym for the *anterior ethmoidal artery*. Quain, in the section on Angeiology, calls the *nasal* branch of the *anterior ethmoidal* the *anterior nasal artery*; in the section on the Organs of the Senses, however, the branches shown in Fig. 1006 ramifying on the septum are termed by him the *septal branches* of the *anterior* and *posterior ethmoidal arteries*.

[185] *Arteria Sphenopalatina* (Ibid.).—The *sphenopalatina* or *nasal artery*, a branch of the third (terminal) part of the *internal maxillary artery* in the sphenomaxillary fossa (its origin is shown in Figs. 1005 and 1007), enters the nasal fossæ through the sphenopalatine foramen. The *pterygopalatine* or *pterygopharyngeal artery*, which passes backwards through the canal of the same name (*canalis pharyngeus*, according to Toldt) to supply the fornix of the pharynx and the sphenoidal sinus, is often a branch of the *sphenopalatine artery*, but is sometimes separately derived from the *internal maxillary* trunk. Macalister further describes a *descending pharyngeal branch* of the *sphenopalatine artery*, but this is mentioned neither by Quain nor by Von Langer and Toldt. The *sphenopalatine artery* is distributed chiefly to the nasal fossæ, its branches being called by Von Langer and Toldt *arteriæ nasales posteriores, laterales, et septi*, and by Macalister the *posterior nasal arteries*. "One long branch, the *nasopalatine artery* or *artery of the septum*, runs downwards and forwards in the groove on

the vomer, and ends in a small vessel which enters the incisor foramen to communicate with the descending palatine artery" (Quain, *op. cit.*, vol. ii., p. 406). According to Macalister's nomenclature, the *nasopalatine artery* divides into *superior* and *inferior* branches, the latter being that which passes through the incisor foramen. Von Langer and Toldt regard the *arteria nasopalatina* as the terminal branch of the *arteria palatina descendens*, which *ascends* through the incisor foramen (canal of Stensen) to anastomose with one of the *arteriæ nasales* previously mentioned (see note [188] below). These are merely two different ways of regarding the same anatomical data.

[186] *Rami Dorsales Linguæ* (Ibid.). — The *lingual artery* may supply a single *dorsal artery of the tongue* on either side, or (as here) several *dorsal lingual branches*.

[187] *Internal Carotid Artery* (Ibid.).—Two branches are given off from the second or intra-osseous portion of this vessel: (1) the *tympanic branch* (*ramus caroticotympanicus*), which passes through one of the caroticotympanic canaliculi and anastomoses with the other *tympanic arteries* (see note [183] above); and (2) the *Vidian branch* (not shown in Fig. 1006), which anastomoses with the *Vidian branch* (*arteria canalis pterygoidei Vidii*) of the internal *maxillary artery*.

[188] *Arteria Palatina Descendens*, **Arteria Palatina Major, et* **Arteriæ Palatinæ Minores* (Fig. 1007, p. 619).—The *superior* or *descending palatine artery*, arising in the sphenomaxillary fossa from the third (terminal) portion of the internal maxillary artery (see Fig. 1005, p. 617), sometimes gives off the *Vidian artery*, which may, however, arise separately from the *internal maxillary* trunk; it also gives small branches which descend in the posterior and external accessory palatine canals to supply the soft palate and the tonsil—these, called by Toldt **arteriæ palatinæ minores*, are left unnamed by Quain and Macalister, but may be termed the **accessory palatine arteries*; descending in the posterior palatine or palatomaxillary canal, the *superior* or *descending palatine artery* emerges on the inferior surface of the hard palate accompanied by the large palatine nerve, and runs forward in one of the *palatine grooves; in this situation its name is unchanged in the English nomenclature; the author, however, now calls it **arteria palatina major*, the **great palatine artery*; the vessel terminates, as described in note [185] above, by ascending through Stensen's canal to anastomose with the *nasopalatine artery* or *artery of the septum*.

[189] *Rami Gingivales Inferiores* (Ibid.). — The *inferior gingival branches* are derived partly from the *sublingual artery*, partly, also, from the *submental artery*, and from the *mylohyoid branch* of the *inferior dental* (or *alveolar*) *artery*.

[190] *Meningeal Branch of the Vertebral Artery* (Ibid.).—It is to this vessel that the name of *posterior meningeal artery* is commonly applied by English anatomists. The small vessel seen emerging from the jugular foramen, to which the name *arteria meningea posterior* is given by the author, is an offset of the *ascending pharyngeal* artery. (See also note [176] above.)

[191] **Arcus Raninus* (Fig. 1008, p. 620).—"Near the tip of the tongue the two *ranine arteries* communicate by means of a small loop (Krause), but with this exception the right and left arteries do not form other than capillary anastomoses" (Quain, *op. cit.*, vol. ii., p. 396).

[192] *Rami Musculares Arteriæ Ophthalmicæ* (Fig. 1010, p. 621).—Some of these are named by English anatomists. Quain writes: "Small *muscular* offsets arise at uncertain intervals from the trunk of the *ophthalmic artery*, as well as from the *lachrymal* and *supra-orbital branches*; in addition to these there are two more regular branches, an *external*, which is distributed to the upper and outer muscles of the orbit, and an *internal*, larger and more constant, to the lower and inner muscles" (*op. cit.*, p. 409). Macalister calls these branches *superior* and *inferior muscular*, respectively, and describes also a special *muscular artery to the external rectus*.

[193] *Ramus Orbitalis Arteriæ Meningeæ Mediæ* (*Var.*) (Ibid.).—There is normally a small communicating branch, called by Quain the *orbital branch* of the *middle* or *great meningeal artery*, passing from the trunk of this vessel or from its anterior division through the outer end of the sphenoidal fissure (or through a special aperture in the great wing of the sphenoid bone) to join a branch of the *lachrymal artery*, and the *ramus orbitalis* here figured is a larger homologue of this vessel. Macalister names it the *lachrymal branch* of the *middle meningeal artery*, and in one place (*op. cit.*, p. 582) describes it as supplying the lachrymal gland; in another (p. 657), he states that the *lachrymal artery* (*ex arteriâ ophthalmicâ*) "receives a large branch through the sphenoidal fissure from the *middle meningeal artery*, this branch varying inversely in size with the *lachrymal artery* itself."

[194] *Arteria Tympanica Superior* (Ibid.). — Usually known in England by the name of the *tympanic branch* of the *middle* or *great meningeal artery*. (See note [183] above.)

[195] *Arteriæ Cerebelli* (Fig. 1011, p. 622).—Some confusion is liable to arise regarding the nomenclature of the *cerebellar arteries*, and for this reason the use of double names is better avoided, and I adhere to those employed by Macalister. These vessels are three in number, two being offsets of the basilar artery, the third being derived from the vertebral: (1) *Arteria cerebelli inferior anterior*, the *anterior cerebellar artery* (Macalister); this arises from the posterior extremity of the *basilar artery*; Quain calls it the *anterior* (*inferior*) *cerebellar artery*, Ellis the *anterior cerebellar artery*. (2) *Arteria cerebelli superior*, the *superior cerebellar artery* (Macalister), this arises from the anterior extremity of the *basilar artery*, being commonly described as one of the terminal branches of that vessel; Quain and Ellis also call this the *superior cerebellar artery*. (3) *Arteria cerebelli inferior posterior*, the *posterior cerebellar artery* (Macalister); this arises from the *vertebral artery*; Quain calls it the (*posterior*) *inferior cerebellar artery*, Ellis the *inferior cerebellar artery*.

[196] *Operculum* (Fig. 1012, p. 623).—This name is given to the portions of the frontal and parietal lobes lying between the ascending and posterior branches of the fissure of Sylvius, and covering the upper part of the central lobe or Island of Reil. It is sometimes called more fully the *operculum of the insula*; sometimes, also, the *operculum of Burdach*.

[197] **Vena Mediana Colli* (Figs. 1015, 1016, p. 626).—"When both *anterior jugular veins* are absent, or very small, we find in the median line the **median vein of the neck*, the radicles of which are beneath the chin, and which runs in the superficial fascia towards the *suprasternal notch* (or *fossa jugularis*); in this region it usually bifurcates into right and left branches, which enter the **jugular venous arch* in the *spatium interaponeuroticum suprasternale* [*suprasternal space*, or *Burns's space*—see note [123] above], or the lower part of the *median vein of the neck* may itself form part of the **jugular venous arch*" (Von Langer and Toldt, *op. cit.*, p. 542). Quain states that the anterior jugular vein varies greatly in size, and that the right and left veins may sometimes be united into a single median vessel for a part of their length. Macalister uses the term *vena mediana colli* as a synonym for the *anterior jugular* vein.

[198] (Fig. 1015, p. 626).—Called by Macalister *nervus descendens cervicis*. This branch is, however, still very commonly known by the old name of *descendens noni*, the *hypoglossal nerve*, the *twelfth*

cranial nerve of Soemmerring, being the ***ninth cranial nerve, nervus nonus***, in the enumeration of Willis.

[199] *N. Cervicalis Descendens* (Ibid.).—This name is given here, but not in the section on Neurology, nor in Von Langer and Toldt's "Anatomy," to one of the ***communicating branches*** of the ***cervical plexus*** which join the ***descending cervical*** branch of the ***hypoglossal nerve*** (see note [198] above) to form the ***ansa hypoglossi.***

[200] *Sinus Vertebralis Longitudinalis* (Ibid.).—"A double vertically disposed series of anastomoses also belongs to the internal vertebral venous plexuses. These are situate on the posterior surfaces of the bodies of the vertebræ, and connect the adjoining vertebral venous plexuses. Taken as a whole they constitute the so-called ****longitudinal vertebral sinuses***, which extend as two parallel vascular chains on either side of the posterior common ligament right down to the coccyx" (Von Langer and Toldt, *op. cit.*, p. 540). Quain calls them the ***anterior longitudinal spinal veins;*** and this author describes also two ***posterior longitudinal spinal veins***, between the dura mater and the posterior wall of the spinal canal. They are, however, "often much broken up in parts of their course." The term ****longitudinal vertebral sinus*** is not current in England, but Macalister, writing of the ***internal vertebral venous plexuses***, remarks: "The whole system is extrathecal, but within the periosteum of the canal, and therefore on the same horizon as the system of cerebral sinuses" ("Anatomy," p. 260).

[201] *Venæ Intervertebrales* (Fig. 1016, p. 626).—The ***intervertebral veins***, in the author's terminology, are those that drain the blood from the vertebral venous plexuses through the intervertebral foramina, passing, according to the region in which they issue, to the vertebral veins, the posterior branches of the intercostal and lumbar veins, and the lateral sacral veins. See also note [265] below).

[202] *Layers of the Deep Cervical Fascia* (Ibid.).—Macalister enumerates these as follows: (1) The ***suprasternomastoid layer;*** (2) the ***substernomastoid layer***, which splits into two at the outer side of the great vessels of the neck, thus forming the ***carotid sheath***, the posterior layer of this sheath being continuous with (3) the ***post-pharyngeal fascia***, which passes from side to side across the median line behind the constrictors of the pharynx; (4) the ***pretracheal fascia*** passes from side to side from the front of the carotid sheath anterior to the trachea, and between this layer and the suprasternomastoid or superficial layer is ***Burns's space*** (see note [197] above), while below the pretracheal fascia passes into the thorax to join the pericardium as ***Godman's fascia;*** (5) the deepest transverse layer is the ***prevertebral fascia*** posterior to the post-pharyngeal fascia, but not distinguished from it in Figs. 1015 and 1016.

[203] *Subscapular Artery* (Fig. 1017, p. 628).—According to Quain's nomenclature, which is that usually accepted in England, the ***subscapular artery*** gives off a large ***dorsal*** branch, the ***dorsal scapular artery, arteria dorsalis scapulæ;*** and its downward continuation, often smaller than the dorsal branch, still receives the name of ***subscapular*** artery. According to Toldt, however, the ***arteria subscapularis***, after giving off the ***arteria circumflexa scapulæ*** (*i.e.*, the ***dorsal*** branch aforesaid), becomes the ***arteria thoracodorsalis;*** and Macalister uses a similar terminology, describing the ***long subscapular artery*** as dividing into ***dorsalis scapulæ*** and ***thoracicodorsalis.*** He distinguishes the main trunk as the ***long subscapular***, because one or two ***short subscapular*** branches (***rami subscapulares*** according to Toldt) are given off by the axillary artery directly to the subscapularis muscle.

[204] (Ibid.) ***Arteria thoracalis lateralis***, the ***long thoracic artery***, supplies ***rami mammarii, external mammary branches***, larger in the female than in the male, and especially large during lactation. The ***long thoracic*** itself is sometimes called the ***external mammary artery.***

[205] *Parts of the Subclavian Artery* (Ibid.).—Von Langer and Toldt divide the subclavian artery into *two* parts only: the ***thoracic*** part extends from the commencement of the vessel to its emergence from the *scalene space (see note [1] to p. 277 in Part III. of this work); the ***cervical*** part, comprising the remainder of the artery, between the outer border of the scalenus anticus muscle and the lower border of the subclavius muscle, lies deep in the (greater) supraclavicular fossa. English authorities divide the vessel into ***three*** parts, ***first, second***, and ***third*** (Macalister giving as alternative names, ***pectoral, intermuscular***, and ***cervical*** stages). The ***first*** part, internal to the scalenus anticus muscle, and the ***second*** part, behind that muscle, thus correspond to the ***thoracic*** part of Von Langer and Toldt; while the ***third*** or ***cervical*** part of English authors is nearly identical with the ***cervical*** part of Von Langer and Toldt, the only difference being that by the former the ***outer border of the first rib***, by the latter the ***lower border of the subclavius muscle***, is regarded as marking the boundary between the ***subclavian*** and the ***axillary artery.***

[206] *Branches of the Axillary Artery* (Fig. 1018, p. 629).—These are somewhat variable in their number and distribution, and they are very variously named by different authorities. By Von Langer and Toldt they are arranged in four groups, distributed respectively to the ***anterior***, the ***posterior***, the ***internal*** and the ***external*** wall of the axilla. I. *Branches to the Anterior Wall of the Axilla:* 1. ***Arteria thoraco-acromialis***, usually known in England as the ***acromiothoracic artery***, sometimes called the ***acromial thoracic***, and by Macalister termed the ***thoracico-acromial artery;*** the named offsets of this vessel are four in number: ***ramus subclavius***, the ***clavicular branch; ramus pectoralis***, the ***pectoral*** or ***thoracic branch*** (there may be two or more of these, and among them in females is often an ***external mammary*** branch); ***ramus acromialis***, the ***acromial branch***, to the ***acromial rete*** (see note [170] above); and ***ramus deltoideus***, the ***descending*** or ***humeral branch***, which runs downwards beside the cephalic vein in the deltoideopectoral groove (see Part III., p. 282, Fig. 523.). 2. ***Arteria thoracalis suprema***, the ***superior*** or ***short thoracic artery***, described by Von Langer and Toldt as an "occasional" branch; this vessel is often derived from the ***acromiothoracic artery***—an arrangement described by some anatomists as normal, the ***acromiothoracic*** trunk being then often called the ***thoracic axis***, especially when the remaining ***thoracic*** branch (presently to be described), the ***long thoracic artery***, has the same origin. II. *Branches to the Posterior Wall of the Axilla:* 3. ***Arteria subscapularis***, the ***subscapular artery***, called by Macalister the ***long subscapular artery*** (see note [203] above): the principal branch of this is the ***arteria circumflexa scapulæ***, the ***dorsal*** branch of the subscapular artery, ***dorsalis scapulæ***, or ***dorsal scapular artery*** of English authors, which passes backwards through the ****internal axillary space*** (see Part III., p. 312, Fig. 599, and note [1] to same page) or ***subscapular triangle*** (Macalister) to reach the infraspinous fossa; the ***dorsal scapular*** artery gives to the subscapular fossa what are variously described as ***ventral branches*** (Quain), ***deep subscapular branch*** (Macalister), or ***infrascapular offset*** (Ellis), and among the terminal offsets of this branch (or these branches) are the ***ventral nutrient artery of the scapula*** and the ***superior articular artery of the shoulder;*** in addition, the ***dorsalis scapulæ*** gives a ***descending branch*** (called by Young the ***median branch***) which runs in the groove between the origins of the teres minor and teres major muscles to the inferior angle of the scapula: the continuation of the ***subscapular artery*** (commonly smaller than the ***dorsal branch***) is renamed by Toldt ***arteria thoracodorsalis***, and Macalister

follows the Continental usage in terming it the *thoracicodorsalis artery*, but by most English anatomists it is still called *subscapular artery* in this part of its course; it terminates in *muscular branches* to the latissimus dorsi, serratus magnus, teres major, and teres minor muscles. III. *Branches to the Internal Wall of the Axilla:* 4. *Arteria thoracalis lateralis*, the *long thoracic* (or *external mammary artery*), which gives *muscular branches* to the serratus magnus, pectoralis major, and pectoralis minor muscle, and *rami mammarii*, *external mammary branches* (see note [204] above). IV. *Branches to the External Wall of the Axilla:* 5. *Arteria circumflexa humeri anterior*, the *anterior circumflex artery* (of the arm). 6. *Arteria circumflexa humeri posterior*, the *posterior circumflex artery* (of the arm), which runs backwards through the **external axillary space* (see Part III., p. 312, Fig. 589, and note [1] to same page) or *quadrilateral space* (Macalister), and gives numerous offsets, named by Macalister as follows: *Ascending branch*, to the teres minor muscle; *descending branch*, to the long head of the triceps; *nutrient branch*, to the great tuberosity of the humerus; *posterior articular artery*, to the shoulder-joint; *acromial branch*, to the *rete acromiale* (see note [170] above); and an *anastomotic branch* to the *superior profunda branch* of the *brachial artery*. *Fifth Group. Branches not enumerated by Von Langer and Toldt:* 7. The *alar thoracic artery* to the lymphatic glands and fatty tissue of the axilla; this is a very variable branch, and may arise (*a*) direct from the *axillary trunk*, (*b*) from the *long thoracic artery*, (*c*) from the *thoracic axis* (*acromiothoracic artery*). 8. In females there is occasionally an independent *external mammary artery*, arising from the *axillary trunk* below the origin of the *posterior circumflex artery*. *Sixth Group.* 9. *Rami subscapulares*, the *short subscapular arteries*, must also be mentioned, usually two in number, small vessels passing backwards from the *axillary trunk* to the subscapularis muscle.

[207] *Parts of the Axillary Artery* (Ibid.).—By Von Langer and Toldt, as by English anatomists, the axillary artery is divided into three parts, but the limits of these are not exactly identical in the Continental and the English description. As already mentioned (see note [205] above), according to Von Langer and Toldt, the subclavian artery becomes the axillary at the lower border of the subclavius muscle, but according to English anatomists at the outer border of the first rib. It is obvious that the English boundary is more precise, inasmuch as the position of the subclavius muscle varies with the varying elevation of the shoulder. The *first* part of the axillary artery extends from its commencement to the upper border of the pectoralis minor muscle. The *second* part of the artery lies beneath (behind) the pectoralis minor muscle. The *third* part of the vessel extends from the lower border of the pectoralis minor muscle to the termination of the vessel. In this respect, again, there is a difference between the Continental and the English usage, for according to the former, the axillary artery becomes the brachial opposite the lower (outer) border of the pectoralis major muscle; but according to the latter, opposite the lower (outer) border of the teres major muscle. Thus, the third part of the axillary artery, as the term is understood in England, is nearly twice as long as the third part of the vessel as described by Von Langer and Toldt.

[208] *Arteria Cervicalis Superficialis* (Ibid.).—"The *superficial cervical artery* is distributed to the superficial structures of the (greater) supraclavicular fossa, to the trapezius, levator anguli scapulæ, rhomboideus major, serratus posticus posterior, and splenius capitis muscles. Its size and the area it supplies are exceedingly variable; it may entirely replace the *transverse cervical artery* (*arteria transversa colli*), or, conversely, be entirely replaced by that vessel. Normally it is one of the principal branches of the thyroid axis" (Von Langer and Toldt, *op. cit.*, p. 512). Quain's use of the term *superficial cervical artery* is explained in notes [134], [135], and [172] above.

[209] *The Branches of the Brachial Artery* (Fig. 1019, p. 630).—1. *Arteria profunda brachii*, the *superior profunda artery* (of the arm), which gives the following offsets: (*a*) *Ramus deltoideus*, the *communicating branch* (Macalister) or *deltoid branch* (Quain), which anastomoses beneath the deltoid muscle with branches of the *posterior circumflex artery*; (*b*) *arteria nutricia humeri*, the *nutritious* (Macalister) or *medullary branch* (Quain); (*c*) *arteria collateralis media*, the *muscular branch to the inner head of the triceps muscle*; (*d*) *arteria collateralis radialis* (regarded in England as the terminal portion of the superior profunda artery itself), the *anterior terminal branch* of which passes with the musculospiral nerve through the external intermuscular septum, and anastomoses with the radial and recurrent artery, while the *posterior terminal branch* passes along the back of the external intermuscular septum, and ends in the *rete olecrani*, anastomosing there with the *inferior profunda*, *anastomotica magna*, *posterior ulnar recurrent*, and *interosseous recurrent arteries*. There are, further, (*e*) the *muscular branch to the long head of the triceps muscle*; (*f*) a *cutaneous branch* with the inner cutaneous branch of the musculospiral nerve. 2. *Arteria collateralis ulnaris superior*, the *inferior profunda artery*, which supplies the inner head of the triceps, and ends in the *rete olecrani* already described. 3. *Arteria collateralis ulnaris inferior*, the *anastomotic branch* (*anastomotica magna*), which runs in the inner bicipital furrow, perforates the internal intermuscular septum, and joins the *rete olecrani*; it gives an *anterior branch* which descends between the brachialis anticus and pronator radii teres muscles in front of the internal condyle to anastomose with the *anterior ulnar recurrent artery*. 4. In addition to the *medullary* or *nutritious* branch of the *superior profunda*, there is another and larger vessel supplied to the humerus called the *chief medullary artery*, which usually arises in common with the *upper muscular branch to the brachialis anticus muscle*; the foramen for the chief artery is just below the insertion of the coracobrachialis muscle, that for the nutrient branch of the superior profunda is higher up, near the top of the spiral groove. 5. Small *muscular* branches are furnished by the *brachial artery* during its course, and are stated by Macalister to be usually eight in number. 6. According to Macalister, a *vas aberrans*, arising close to or in common with the *superior profunda artery*, descending over the median nerve, supplying the biceps, and ending by joining the radial (or less commonly the ulnar) artery, is usually present, but often so small as to escape injection; other authorities speak of its presence as exceptional. When large it may replace and simulate the brachial artery, which then appears to be superficial to the median nerve. If moderately large it may replace the ordinary origin of the radial artery (rarely that of the ulnar artery); we thus have the condition, often met with, called the high bifurcation of the brachial artery. "A very interesting variety in the origin of the branches of the brachial artery is that in which the *superior profunda artery*, the *inferior profunda artery*, and the *anastomotica magna artery* all arise by a common stem, from which the *circumflex arteries* and the *subscapular artery* are also derived. In such cases, the axillary artery, as it emerges from the axilla, is seen to divide into two trunks of equal size, one of which runs as far as the elbow without giving off any branches of importance, whilst the other supplies the structures of the shoulder and the other arm. This condition resembles that normally met with in the distribution of the femoral artery" (Von Langer and Toldt, *op. cit.*, p. 516).

[210] *Upper Limit of the Brachial Artery* (Ibid.).—As already mentioned in note [207] above, according to Von Langer and Toldt the *axillary artery* becomes the *brachial artery* opposite the lower (outer) border of the pectoralis major; but according to English anatomists somewhat lower than this, opposite the lower (outer) border of the teres major muscle. The former definition is really a more accurate one, for the vessel is no longer in the axilla after it has emerged from behind the pectoralis major muscle. Macalister, indeed, goes further than this, remarking that the whole of the *third stage of the axillary artery* (so-called)—*i.e.*, from the lower border of the pectoralis minor to the lower border of the teres major muscle—"belongs to the arm, not to the axilla, and should properly be described as part of the brachial artery" ("Anatomy," p. 269). The distinction is, of course, one of definition merely, and has no practical significance.

[211] (Fig. 1020, p. 631.) Partly owing to the independent origin of the *muscular branch to the internal or deep head of the triceps muscle, arteria collateralis media*, the distribution of the branches of the *superior profunda artery* differs somewhat in this specimen from the description given in note [209] above (*q.v.*). Thus, the lower part of the *superior profunda artery*, called by the author *arteria collateralis radialis*, is seen to divide into two branches, the *anterior terminal branch* passing with the musculospiral nerve through the external intermuscular septum, and the *posterior terminal branch* passing to the back of the elbow to join in the formation of the *rete olecrani*. Higher up, a large *muscular branch to the external head of the triceps* is seen.

[212] *Rete Articulare Cubiti, Rete Olecrani, or Arterial Network of the Elbow* (Ibid.).—The vessels taking part in the formation of this plexus have been enumerated in note [209] above.

[213] *Digital Arteries* (Fig. 1022, p. 633).—In England the *palmar digital arteries* are usually spoken of as the *digital arteries* without qualification, the *dorsal digital arteries*, which are very much smaller than the *palmar*, being often ignored, except in the case of the *dorsal arteries of the thumb* and of *the index finger*. Moreover, the distinction made by the author between the *arteriæ digitales volares communes*, the *common palmar digital arteries* (before their bifurcation), and the *arteriæ digitales volares propriæ*, the *proper palmar digital arteries* (after their bifurcation), fully expressed in Quain's nomenclature. The *arteriæ digitales volares propriæ* of Toldt are by Quain termed *digital arteries* without further qualification; and these are said to divide into two *collateral branches* for the respective fingers, the *arteriæ digitales volares propriæ* of Toldt.

[214] *Anterior Annular Ligament of the Wrist* (Ibid.).—I take this opportunity of supplying an omission from the translation of Part III. (already published). The *anterior annular ligament of the wrist* consists of two layers, a *superficial* and a *deep*, the ulnar artery lying between them. The *superficial layer*, called by Toldt *ligamentum carpi volare*, is homologous with the *posterior annular ligament of the wrist* (*ligamentum carpi dorsale* of Toldt), both structures being specialized portions of the superficial layer of the deep fascia of the forearm; this superficial layer is continued below into the palmar fascia. The *deep layer*, called by Toldt *ligamentum carpi transversum*, arches over the median nerve and the nine flexor tendons, forming the anterior wall of the canal of the carpus, and is a specialized band of the intermuscular septum between the palmaris longus and the flexor sublimis muscles. The distinction between these two layers of the anterior annular ligament is not clearly indicated in all English text-books, but it is emphasized by Macalister (*op. cit.*, p. 309). In the translation of Part III. of this work, pp. 322, 324, 332, 334, I have rendered the terms *ligamentum carpi volare* and *ligamentum carpi transversum* indifferently as *anterior annular ligament of the wrist*.

[215] *Anterior Carpal Rete* (Fig. 1023, p. 634).—This arterial network lies beneath the lower edge of the pronator quadratus muscle, and in front of the carpus. It is supplied by the anterior radial carpal and anterior ulnar carpal arteries (a large communicating branch between these vessels constituting the *anterior carpal arch*); also by the anterior communicating or anterior terminal branch of the anterior interosseous artery, and by the recurrent or ascending branches of the deep palmar arch.

[216] *Superior Perforating Arteries* (Ibid.).—These small vessels, which pass through the proximal extremities of the intermetacarpal spaces, connecting the deep palmar arch with the posterior carpal rete (see note [219] below), are distinguished as *superior perforating* from the *inferior perforating arteries* which pass through the distal extremities of the intermetacarpal spaces, connecting the dorsal interosseous arteries with the (palmar) digital arteries. The *radial artery* itself, as it passes into the palm of the hand between the heads of the first dorsal interosseous (or abductor indicis) muscle, thus represents the *first superior perforating artery*. This is well shown in Fig. 1024.

[217] *Arteria Collateralis Radialis* (Ibid.).—This name is given by the author to the lower part of the *superior profunda artery* (of the arm) of English authors, after it has given off the *arteria collateralis media*, the muscular branch to the inner head of the triceps muscle (see notes [209] and [211] above).

[218] (Ibid.). The *large artery of the thumb* and the *radial artery of the index finger*, the last branches furnished by the *radial* trunk before it turns inwards to form the *deep palmar arch*, are commonly known in England by their Latin names of *princeps pollicis* and *radialis indicis arteries*.

[219] *Posterior Carpal Rete* (Fig. 1024, p. 635).—This arterial network lies beneath the extensor tendons on the back of the carpus. It is supplied by the *posterior radial carpal* and *posterior ulnar carpal arteries* (a large communicating branch between these vessels constituting the *posterior carpal arch*); also by the *terminal* offsets of the *anterior* and *posterior interosseous arteries*; while the *superior perforating arteries* (see note [216] above) connect the *posterior carpal rete* with the *deep palmar arch*.

[220] *Dorsal Interosseous Artery* (Ibid.).—The *first dorsal interosseous artery*, called by Macalister the *metacarpal artery*, a branch of the radial artery, often arises, as in this instance, in common with the posterior radial carpal branch; it runs in the back of the interval between the second and third metacarpal bones. The *second* and *third dorsal interosseous arteries*, arising from the posterior carpal arch, are distributed in the back of the third and fourth interosseous spaces. See also note [222] below.

[221] *Superficial Veins seen in* Fig. 1028 (p. 638).—The arrangement of the superficial veins in this specimen is not that usually described as normal, but it is a very common variation from the normal, which will be better understood from an examination of the middle specimen of Fig. 1090, p. 697, in which the same arrangement is met with. A description of the **median vein of the elbow* is given in note [303] below. In Fig. 1028 the *radial vein*, having already given off the **median vein of the elbow*, has become the *cephalic vein* (see note [305] below); but the *ulnar vein* has not yet become the *basilic vein*, as it has not yet been joined by the **median vein of the elbow*. This ulnar vein has no doubt been formed by the confluence of *anterior* and *posterior ulnar veins*. In the author's terminology it is the *vena basilica* (see note [306] below). The vein (unnamed in the figure) lying just in front of the ulnar vein is most probably the *median vein* (of the forearm), which has inclined inwards to join the *ulnar vein*.

[222] (Fig. 1031, p. 639.) It will be noticed that the author numbers the *arteriæ metacarpeæ dorsales* according to the number of the interosseous space in which they lie. In Quain's nomenclature, however, the *arteria metacarpea dorsalis prima*, being very small, is ignored; and thus the *first dorsal interosseous artery* of Quain (*metacarpal branch* of the *radial artery*, according to Macalister) corresponds to the *arteria metacarpea dorsalis secunda* of the author. The Continental enumeration of these vessels is much to be preferred. See also note [220] above.

[223] *Femoral Artery* (Fig. 1033, p. 641).—The portion of this vessel above the origin of the *profunda* is often distinguished as the *common femoral*, that below the origin of the profunda as the *superficial femoral artery*.

[224] *Internal Circumflex Artery* (*of the Thigh*) (Ibid.).—According to Von Langer and Toldt's description (*op. cit.*, p. 525), the *arteria circumflexa femoris medialis* divides almost immediately after its origin from the profunda into a *ramus superficialis*, distributed to the muscles of Scarpa's space, and a much larger *ramus profundus*, which passes backwards between the pectineus and iliopsoas muscles above the small trochanter to the back of the neck of the femur and supplies the *ramus acetabuli* to the hip-joint. According to the description given by Quain, the *ramus superficialis* corresponds to unnamed *muscular branches*, while the *ramus profundus* is the continuation of the *internal circumflex artery* itself; arrived at the back of the femur it supplies an *articular branch*, the author's *ramus acetabuli*, the development of which is inversely proportional to that of the *articular branch of the obturator artery;* the internal circumflex finally divides into *ascending* and *transverse branches*, the former following the tendon of the obturator externus muscle to the digital or trochanteric fossa, and the latter ending in the *crucial anastomosis* (see note [230] below).

[225] *Rete Patellæ* (Ibid.).—The *patellar rete* is that portion of the *rete articulare genu*, the **articular rete of the knee*, which lies immediately in front of the patella. The term *patellar rete* is used by Macalister to denote the whole of the articular network of the knee; but Toldt limits the application of *rete patellæ* as above defined, and the latter's usage is to be preferred, on the score of accuracy. For an account of the *articular rete of the knee* as a whole see note [227] below.

[226] *Branches of the Femoral Artery in the Lower Part of Hunter's Canal* (Fig. 1034, p. 642).—The author's nomenclature of these differs from that usual in England. "The branches of the femoral artery for the region of the knee-joint often arise by a common trunk, the *arteria genu suprema*. This springs from the femoral artery just above the opening in the adductor magnus muscle, and runs down towards the capsule of the knee-joint in the substance of the vastus internus muscle near the common extensor tendon. It gives *rami musculares* to the vastus internus; a *ramus saphenus* which, descending beside the internal saphenus nerve, is distributed to the integument; and finally *rami articulares*, which contribute to the *rete articulare genu* [see note [227] below]. Often, however, the greater number of the *rami musculares* and the *ramus saphenus* are supplied by a separate branch of the femoral artery, which arises from that trunk somewhat higher up in Hunter's canal" (Von Langer and Toldt, *op. cit.*, pp. 526, 527). According to Quain's description, several *muscular branches* are supplied by the femoral artery in Hunter's canal, the lowermost of which, constant, and of considerable size (sometimes derived from the upper part of the popliteal artery), passes outwards across the back of the femur, perforating the short head of the biceps and the external intermuscular septum, to end in the crureus muscle. The *anastomotic artery* arises from the femoral a little above the opening in the adductor magnus, and divides almost immediately into two branches (which are in many cases derived separately from the femoral trunk). The *superficial branch* runs down with the internal saphenous nerve; the *deep branch* courses along the front of the tendon of the adductor magnus muscle to the internal condyle of the femur. It supplies *articular branches* to the *rete articulare genu*. From these descriptions it will be apparent that the *anastomotic artery* is identical with the author's *arteria genu suprema*, and the *superficial branch* of that vessel with the author's *ramus saphenus*.

[227] **Rete Articulare Genu* (Ibid.).—The **articular rete of the knee* is an arterial network over the front and sides of the knee-joint. It consists of two layers: a *superficial*, with wide meshes and very minute constituent vessels, lying between the skin and the deep fascia; and a *deep*, with finer meshes and larger constituent vessels, actually in contact with the bones. The *patellar rete* is that portion of the network situate immediately in front of the patella, but the term is by English anatomists usually applied (inaccurately) to the network as a whole. The vessels supplying the rete are six in number, viz., the four lateral *articular* branches of the popliteal, the *anastomotic* branch of the femoral, and the *recurrent* branch of the anterior tibial artery.

[228] *Hunter's Canal* (Ibid.).—It is to be noted that the author uses the term *Hunter's canal* in a sense different from that attached to it by English anatomists. We find the following description in Von Langer and Toldt's "Anatomy," 7th ed., p. 263: "The *fossa iliopectinea* (*Scarpa's triangle*) . . . passes below into a groove, bounded internally by the adductor muscles and externally by the vastus internus muscle, and extending downwards along the long axis of these muscles. Already at the upper part of the middle third of the thigh, this groove is roofed by the sartorius muscle, and in addition, from about the middle of the thigh downwards, it is covered by a strong tendinous membrane, which stretches across from the commencement of the tendon of the adductor magnus muscle to the vastus internus muscle. Thus the groove is converted into a closed canal, *canalis adductorius Hunteri* (*Hunter's canal*)." If this description leaves the point still undecided, the description of Fig. 1034 shows clearly that the fascial layer there figured covering the lower part of the femoral artery is the roof of Hunter's canal, the upper aperture of which is in the middle of the thigh. In England, however, the sartorius muscle is regarded as the roof of Hunter's canal, and that canal extends from the point at which the muscle comes to lie in front of the artery, *i.e.*, the apex of Scarpa's triangle, to the opening in the adductor magnus muscle. And while it is true that the accessory fascial roof of Hunter's canal is thicker and stronger below than above the middle of the thigh, that fascial roof exists wherever the femoral artery is covered by the sartorius muscle, and the well-defined upper margin of the fascia shown in Fig. 1034 is the product of dissection.

[229] *Gluteal Artery* (Fig. 1038, p. 646).—By English anatomists this vessel is described as dividing just after it emerges from the pelvis into a *superficial*, smaller, part, and a *deep*, larger, part; the latter, again, divides into *superior* and *inferior branches*. In Toldt's nomenclature the superficial part is called the *muscular branch* to the gluteus maximus muscle; whilst it is the continuation of the trunk of the *arteria glutæa superior* which divides into a *ramus superior* and a *ramus inferior*.

[230] *Trochanteric Rete and Crucial Anastomosis* (Ibid.).—The *anastomotic branch* of the *sciatic artery* (seen in Fig. 1038 running downwards and outwards along the lower border of the pyriformis muscle), the *ascending branch* of the *first* or *superior perforating artery*, the *transverse branch* of the *internal circumflex artery*, and

the *transverse branch* of the *external circumflex artery*, inosculate behind the great trochanter and in the digital fossa to form what is often called the *crucial anastomosis*. A lateral extension from this anastomosis, in the form of a network of fine vessels on the outer surface of the great trochanter, beneath the gluteus maximus muscle, constitutes the *trochanteric rete*.

[231] *Adductor Magnus Muscle* (Ibid.).—This is the posterior and inferior portion of the *adductor magnus muscle* as usually described by English anatomists, the anterior and superior portion of the same muscle being the *adductor minimus muscle* of Toldt. See note [2] to p. 345 in Part III. of this work.

[232] *Sural Arteries* (Fig. 1040, p. 648).—The *external and internal sural branches* of the *popliteal artery* are sometimes designated the *inferior muscular branches* (the *superior muscular branches* of the same trunk supplying the lower parts of the adductor magnus and hamstring muscles). The name *sural* is, however, preferable, as being more distinctive. The *cutaneous arteries of the calf*, long slender vessels, shown in Figs. 1040 and 1044, may arise, as in the specimen here figured, from the *sural arteries;* frequently, however, they are independent branches of the popliteal trunk. They are often distinguished by the name of *superficial sural arteries.*

[233] *Medullary or Nutritious Arteries of the Femur* (Fig. 1041, p. 649).—According to Von Langer and Toldt (*op. cit.*, pp. 525, 526) the *arteria nutricia femoris superior* is usually a branch of the *arteria perforans prima*, and the *arteria nutricia femoris inferior* (larger than the former) is usually a branch of the *arteria perforans tertia*. Quain, in the osteological section of his work, figures two arterial foramina in the shaft of the femur, near the upper and the lower end, respectively, of the linea aspera, but in the angeiological section he omits to mention the offset of the *first* or *superior perforating artery*, which enters the upper of these two foramina. The *principal medullary artery of the femur* (*arteria nutricia femoris inferior* of Toldt) is, according to Quain (*op. cit.*, vol. ii., part ii., p. 491), derived either from the *second* (*middle*) or from the *third* (*inferior*) *perforating artery*. An additional medullary artery is, according to this author, frequently derived from the *fourth perforating artery* (the *terminal* branch of the *deep femoral* or *profunda artery*). According to Macalister, the chief nutrient artery of the femur is usually derived from the *second* or *middle perforating artery*.

[234] *Popliteal Canal* (Ibid.).—This name is not used by Quain or Macalister. It is applied by the author to the space beneath (anterior to) the tendinous arch of the soleus muscle through which the posterior tibial vessels and nerve pass from the popliteal space beneath the soleus muscle. See Fig. 612, p. 363, and Fig. 620, p. 371, in Part III. of this Atlas, and also note [245] below.

[235] *External Tarsal Artery* (Fig. 1042, p. 650).—This name is used by Macalister. Quain, on the other hand, who leaves the small *internal tarsal arteries* unnamed, calls this vessel the *tarsal artery* without further qualification. The name used in the text is to be preferred.

[236] *Malleolar Arteries* (Ibid.).—Both the *anterior external* and the *anterior internal malleolar arteries* are branches of the *anterior tibial artery;* the *posterior internal malleolar artery* is a branch of the *posterior tibial artery;* and the *posterior external malleolar artery* (an offset left unnamed by Quain) is derived from the *peroneal artery*.

[237] *Retia Malleolaria* (Ibid.).—The *external* and *internal malleolar retia* are connected in front with the *dorsal rete of the foot* (see note [239] below), and behind and below with the *calcaneal rete* (see note [242] below). The *external malleolar rete* is supplied by the two *external malleolar arteries* (*anterior* and *posterior*—see note [236] above), and by a branch of the *external tarsal artery;* the *internal malleolar rete* is supplied by the two *internal malleolar arteries* (*anterior* and *posterior*—see note [236] above), and by branches of the *internal tarsal arteries*.

[238] *Fundiform Ligament of Retzius* (Ibid.).—This name is given to the undivided outer limb of the anterior annular ligament of the ankle, or ligamentum lambdoideum (see Fig. 614, p. 365, and Fig. 616, p. 367, and notes to same pages, in Part III. of this work).

[239] *The Dorsal Rete of the Foot and the Dorsal Interosseous Arteries* (Fig. 1043, p 651).—The arrangement of the bloodvessels of the dorsum of the foot described as normal by Von Langer and Toldt in their "Anatomy" differs in some respects from that shown in Fig. 1043, which is, however, normal according to English anatomists. The German authors write (*op. cit.*, p. 530): "The *arteria tarsea lateralis* [*external tarsal artery*—see note [235] above] combines with direct branches of the *arteria dorsalis pedis* and with offsets of the *arteriæ tarseæ mediales* [*internal tarsal arteries*] to form the extensive *rete dorsale pedis*, from which numerous offsets to the tarsal bones are derived. From the anterior extremity of the *dorsal rete of the foot* three *arteriæ metatarseæ dorsales* [II.-IV., the *second, third, and fourth dorsal interosseous arteries*] proceed forwards. . . . These latter vessels are considerably reinforced by the *rami perforantes* [*posterior perforating arteries*] by means of which they are directly connected with the [*deep*] *plantar arch;* and in many instances the *second, third*, and *fourth dorsal interosseous arteries* are derived chiefly or exclusively from these *posterior perforating arteries*. In other cases, however, a vessel of considerable size arises from the outer side of the *dorsal artery of the foot*, known as the *arteria arcuata* [*metatarsal artery*], and arches forwards and outwards across the bases of the metatarsal bones to reach the outer border of the foot, receiving on the posterior or concave side of the arch numerous offsets from the *dorsal rete of the foot*, and supplying from the anterior or convex side of the arch the *second, third*, and *fourth dorsal interosseous arteries*. . . . The *first dorsal interosseous artery* is the direct continuation of the dorsalis pedis artery; and this vessel supplies not only the collateral *dorsal digital arteries* for the adjoining sides of the great and second toes, but also the *dorsal digital artery* for the inner side of the former."

[240] *Termination of Dorsalis Pedis Artery* (Ibid.).—The *dorsal artery of the foot* terminates by dividing into two vessels of unequal size. The smaller terminal branch, which is continued in the same direction as the parent trunk, is the *first dorsal interosseous artery* in Quain's nomenclature, but Macalister calls it the *dorsalis hallucis*. (Regarding the distribution of this vessel see the end of note [239] above.) The larger terminal branch, usually known as the *communicating branch to the deep plantar arch*, passes between the heads of the first dorsal interosseous muscle, communicates with the *external plantar artery* to complete the *deep plantar arch*, and provides the plantar digital vessels for both sides of the great toe and for the inner side of the second toe; for this reason Quain gives the alternative name of *plantar digital branch* to this vessel. Inasmuch, however, as it is in series with the other posterior perforating arteries, and is serially homologous with the perforating portion of the radial artery in the upper limb, the name of *first posterior perforating artery* would be more accurately descriptive than any other. Macalister, to conclude, calls it the *first interosseous perforating artery*.

[241] *Perforating Arteries* (Ibid.).—According to the English nomenclature, there are two sets of these vessels—*anterior* and *posterior*. The latter, to which alone the name of *rami perforantes* is given by the author, larger in size and more constant than the former, are offsets of the *deep plantar arch*, and are described in

notes [239] and [240] above. The *anterior perforating arteries* are small and inconstant vessels connecting the anterior extremities of the *dorsal interosseous arteries* with the *plantar digital arteries* adjacent to the terminal bifurcation of these vessels. The author calls them *rami anastomotici arteriarum metatarsearum dorsalium cum arteriis digitalibus plantaribus.*

[242] *Calcaneal Rete* (Fig. 1044, p. 652).—The arterial network over the back and the under surface of the heel communicates above with the *external* and *internal malleolar retia* (see note [237] above), and in front with the *plantar rete* (see note [243] below). It is supplied by the *external* and the *internal calcaneal branches*, the former being derived from the *peroneal artery*, and the latter from the *posterior tibial artery* (Von Langer and Toldt), from the *external plantar artery* (Quain), or from both these vessels (Macalister).

[243] *Plantar Rete* (Ibid.).—The fine-meshed arterial subcutaneous network over the sole of the foot communicates freely with the *calcaneal* and *malleolar retia* and with the *dorsal rete of the foot*, and in addition to the blood received from these sources is reinforced by numerous unnamed cutaneous offsets of the branches of the plantar arteries, which reach the rete by perforating the plantar fascia.

[244] (Fig. 1045, p. 653.) The fascia covering the popliteus muscle is reinforced by, and, indeed, to a large extent derived from, a downward expansion of the tendon of insertion of the semimembranosus muscle.

[245] *Lower Limit of the Popliteal Artery* (Ibid.).—There is some inconsistency in the account given both by Quain and by Macalister of the lower limit and point of division of the popliteal artery. According to the former author, "the popliteal artery . . . reaches from the opening in the adductor magnus to the lower border of the popliteus muscle, where it divides into the anterior and posterior tibial arteries." But in describing the relations of the artery Quain states that "its termination is beneath the upper margin of the soleus muscle" (*op. cit.*, vol. ii., part ii., p. 493). Macalister also states that the artery divides "at the lower border of the popliteus muscle" (*op. cit.*, p. 499); and a few pages later, in describing the termination of the artery, he tells us that it is exposed by removing the gastrocnemius *and the soleus* muscles (p. 509). Now, these statements are irreconcilable, for the *popliteal* or *oblique line* of the tibia (see Fig. 334, p. 136, in Part I.), which gives origin to the soleus muscle, at the same time marks the lower limit of the insertion of the popliteus muscle. Hence these muscles do not overlap, as is well shown by Fig. 612, p. 363, in Part III., and if the popliteal artery really divided at the lower border of the popliteus muscle, the soleus muscle could not possibly lie behind its termination. The description given by Von Langer and Toldt of the ending of this artery is at once more accurate and more consistent than that of the English anatomists just quoted. The German authors ("Anatomy," 7th ed., p. 527) describe the vessel as passing down behind the popliteus muscle to enter what they call the **popliteal canal* (see note [234] above)—*i.e.*, the space beneath (anterior to) the *tendinous arch of the soleus muscle*, and immediately thereafter dividing into anterior and posterior tibial arteries (see also note [249] below). The entrance to the *popliteal canal is also shown in Fig. 612. In not a few instances, indeed, the popliteal artery divides, as described by Quain and Macalister, at the lower border of the popliteus muscle, and in such cases, as stated in note [3] to p. 363, Part III., it is the *posterior tibial* vessels and nerve that enter the *popliteal canal; but this high division of the artery precludes the possibility of its termination lying beneath the upper part of the soleus muscle.

[246] *Soleus Muscle* (Fig. 1046, p. 654).—It is somewhat inconsistent of the author to speak of the *tibial head* (*caput*) and the *fibular head* of the soleus muscle, inasmuch as he gives the name of *triceps suræ* to the gastrocnemius and soleus, considered as a single three-headed muscle (see Figs. 617 and 618, pp. 368 and 369, in Part III.), of which two heads, the inner and outer head of the gastrocnemius, are superficial and attached to the femur, whilst the third head, the soleus, is deep, and attached to the bones of the leg. Moreover, the fibres from the fibula, those from the tendinous arch, and those from the tibia, form a continuous muscular mass, which is not separable into distinct *heads* (see Fig. 612, p. 363, in Part III.). Quain, however, falls into the same error when he writes: "The tibial *head* of the soleus is almost peculiar to man: among the lower animals it occurs, of small size, only in the gorilla, and sometimes in the chimpanzee" (*op. cit.*, vol. ii., part ii., p 264). It should, of course, read "the tibial *origin* of the soleus," etc.

[247] *Communicating Branches between Posterior Tibial and Peroneal Arteries* (Ibid.).—Quain writes (*op. cit.*, vol. ii., part ii., pp. 496, 497): "A *communicating* branch passes transversely beneath the flexor longus hallucis muscle, between the posterior tibial and peroneal arteries, about an inch above the ankle-joint. A second loop of communication between these vessels is sometimes present, lying in the fat beneath the tendo Achillis." It is this second loop which is seen in Fig. 1046, just above the severed extremity of the tendo Achillis; and in Fig. 1047, in addition to both the vessels above described, we see a large communicating branch two or three inches above the ankle-joint. In Von Langer and Toldt's "Anatomy" (7th ed., p. 528) the principal communicating branch between these vessels is called *ramus anastomoticus.*

[248] **Fibular Branch of the Anterior Tibial Artery* (Fig. 1047, p 655).—Quain and Macalister agree in calling this small vessel the *superior fibular* branch; but as there is no *inferior fibular* branch, the name used in the text is to be preferred.

[249] *Division of the Popliteal Artery* (Ibid.).—As explained in note [245] above, Von Langer and Toldt describe the popliteal artery as entering the *popliteal canal, and "immediately thereafter dividing into anterior and posterior tibial arteries." It is necessary to add that the German authors regard the *anterior tibial artery* as a *branch* of the *popliteal artery*, which latter vessel, in their view, terminates nearly an inch below the origin of the anterior tibial by division into the *posterior tibial* and *peroneal arteries.* According to the description usually given by English anatomists, on the other hand, the terminal branches of the *popliteal artery* are the *anterior* and *posterior tibial arteries*, while the *peroneal artery* is regarded as a *branch* of the *posterior tibial artery*. The difference is solely one of terminology.—I may, in conclusion, mention an actual but somewhat rare variety in which the popliteal artery divides into three terminal branches: the anterior tibial, posterior tibial, and peroneal arteries.

[250] *Branches of Internal Plantar Artery* (Fig. 1048, p. 656).—According to Von Langer and Toldt (*op. cit.*, p. 529), this vessel divides into a *ramus superficialis* (*superficial branch*) which supplies the abductor hallucis muscle, and a *ramus profundus* (*deep branch*) which sinks deeply into the inner plantar furrow (the interval between the abductor of the great toe and the short flexor of the toes). Quain (*op. cit.*, vol. ii., part ii., p. 498) enumerates the branches of the internal plantar artery as follows: (*a*) Small communicating branches to the digital arteries of the three inner clefts; (*b*) muscular branches; (*c*) cutaneous branches in the inner plantar furrow; (*d*) cutaneous branches to the inner border of the foot; (*e*) deep offsets to the bones and joints of the foot;

and, finally, (*f*) the internal plantar artery terminates opposite the head of the first metatarsal bone by joining the digital artery to the inner side of the great toe. According to Macalister (*op. cit.*, p. 515), one of the branches of the internal plantar artery, which accompanies and overlies the internal plantar nerve, "may join the superficial branch of the external plantar artery to form a *superficial plantar arch*. This, however, is seldom large enough to admit coarse injection."

[251] *Plantar Digital Arteries* (Ibid.).—The four arteries passing from the (deep) plantar arch to the four clefts between the toes, where they divide into the *collateral digital arteries*, "are called, on account of their course in the interosseous spaces of the metatarsus, *arteriæ metatarseæ plantares* [*plantar metatarsal arteries*]" (Von Langer and Toldt, *op. cit.*, p. 529). In England, however, these vessels are known simply as (*plantar*) *digital arteries*; sometimes, however, to distinguish them from the *collateral digital arteries* into which they divide, the digital trunks before division are known as the *common digital arteries*. (Cf. note [213], on the nomenclature of the digital arteries of the hand.)

[252] *Fascia Iliopectinea* (Fig. 1050, p. 658).—The exact significance of this term as used by the author is explained in note [1] to p. 390, in Part III. Here we see it forming the posterior layer of the femoral or crural sheath.

[253] (Ibid.) Or *pubic portion of the fascia lata*; this is continuous above and externally with the fascial layer called by the author *fascia iliopectinea* (see note [252] above, also the description at the foot of Fig. 598, p. 349, in Part III).

[254] *Nervus Tibialis* (Figs. 1054, 1055, p. 660).—In the author's nomenclature, the name *nervus tibialis* is given to the larger of the two terminal branches of the *great sciatic nerve* from the point of division of the parent trunk until the **tibial nerve* itself divides (usually just below the internal annular ligament of the ankle) into the *internal* and *external plantar nerves*; in England, however, the upper part of this nerve, as far as the lower border of the popliteus muscle, is known as the *internal popliteal nerve*, and for the rest of its course it receives the name of *posterior tibial nerve*.

[255] **Dorsal Interosseous Fascia* (Fig. 1056, p. 660).—"In connexion with the extensor brevis digitorum muscle, we find a well-developed *deep layer* of the *deep fascia of the dorsum of the foot*, known as the *fascia interossea dorsalis*, which forms a covering for the muscle and for the dorsal artery of the foot, and is connected above with the deep layer of the anterior annular ligament of the ankle" (Von Langer and Toldt, *op. cit.*, p. 267). Quain says merely: "The *fascia of the dorsum of the foot* is reduced to a thin membrane prolonged from the anterior annular ligament over the extensor tendons. Beneath it, deeper layers of fascia are placed over the short extensor of the toes and the interosseous muscles" (*op. cit.*, vol. ii., part ii., p. 268).

[256] **Plantar Interosseous Fascia* (Ibid.).—"In the region of the metatarsus, the principal branch of the external plantar artery runs between the second and the third layer of muscles, covered by the easily demonstrated *fascia interossea plantaris*, which separates the interosseous muscles from the adductor hallucis" (Von Langer and Toldt, *op. cit.*, p. 268). Reference to Part III. of this Atlas, Fig. 627, p. 378, and Fig. 628, p. 379, will show that the deep part of the external plantar artery and the fascial layer in question is between the *third* and *fourth* layers of the muscles of the sole as there enumerated, and not between the second and third, a different system of grouping being adopted. The **plantar interosseous fascia* is not described by Quain or Macalister, except vaguely, as "fascia covering the interosseous muscles."

[257] **Deep Layer of the Deep Fascia of the Sole* (Ibid.).—No account of the **fascia plantaris profunda* is to be found even in Von Langer and Toldt's "Anatomy." Examination of Fig. 1055 shows it to lie between the second and third layers of the muscles of the sole, and that it is, in fact, the layer of areolar tissue covering the adductor obliquus hallucis muscle.

[258] *Presacral Venous Plexus* (Fig. 1057, p. 662).—"The *lateral sacral veins* form, by their communications with one another and with the *middle sacral veins*, a plexus over the anterior surface of the sacrum. They receive branches from the sacral canal through the anterior sacral foramina, and open at two or three points into the internal iliac veins" (Quain, *op. cit.*, vol. ii., part ii., p. 540). The *middle sacral veins* unite (in most cases) to form a common trunk, which usually enters the left common iliac vein. The name I have selected as the most suitable English equivalent for the author's *plexus sacralis anterior* is used by Macalister. The plexus communicates in front with the hæmorrhoidal (or rectal) venous plexus, and behind with the anterior internal vertebral venous plexus (see note [267] below).

[259] *Venous Plexuses of the Vertebral Column* (Figs. 1061, 1062, p. 665).—Neither Quain nor Macalister employs a complete series of English terms corresponding to those used by Toldt in his description of the venous plexuses of the vertebral column. Quain, in his account of the veins of the spine, mentions the plexuses connected with these veins, but gives them no distinctive names. I have, therefore, given in the text the literal English equivalents of the Latin terms used by the author, except that I use the word *plexus* in the singular where he uses it in the plural. The **posterior external vertebral plexus* (see note [260] below), for instance, is, as Macalister says, "longitudinally continuous from the sacrum to the skull," and the same is true of the other *vertebral plexuses*. The author, however, regards the *internal vertebral venous plexuses* as made up of a chain of connected segmental plexuses (see note [263] below). Alternative names for some of the vertebral plexuses are given in the notes in the usual manner.

[260] **Posterior External Vertebral Venous Plexus* (Ibid.).—Macalister calls this the *plexus dorsalis* (of the vertebral column). According to Quain (*op. cit.*, vol. ii., part ii., pp. 532, 533), "the *dorsal spinal veins* are derived from the muscles and integument of the back, and form a plexus over the arches of the vertebræ." In another place in the same volume (p. 531) he calls it the *dorsal spinal plexus*. See also note [259] above.

[261] *The Condylar Emissary Vein, and the Venous Rete of the Anterior Condylar Foramen* (Fig. 1063, p. 666).—The *condylar emissary vein* passes from the lateral (sigmoid) sinus through the *posterior* condylar foramen to the beginning of the vertebral vein. It is distinguished by Macalister as the *posterior condyloid vein* from what this author calls the *anterior condyloid vein*. The latter is described by Quain (who does not, however, employ the name just given) as a venous ring surrounding the hypoglossal nerve in the *anterior* condylar foramen, which communicates internally with the occipital sinus and the intraspinal veins, externally with the vertebral veins and the plexus on the front of the spine (*i.e.*, the **anterior external vertebral plexus* of Toldt—see Fig. 1066, p. 669). The so-called *anterior condyloid vein* is shown in Fig. 1080, p. 685, under the name of **venous rete of the anterior condylar foramen*. Von Langer and Toldt describe it as follows: "The emissary veins from the venous ring surrounding the foramen magnum pass outwards through the anterior condylar foramina and, with their tributaries, form a network around the hypoglossal nerves, and are known as *retia canalis hypoglossi*" (*op. cit.*, p. 541).

[262] (Ibid.) Concerning the author's application of the term *arteria transversa colli* (*transverse cervical artery*), see Appendix, notes [134], [133], [172] and [208]; similar considerations apply to the use of the term *vena transversa colli* (*transverse cervical vein*). Macalister gives *posterior scapular* as an alternative name for these vessels.

[263] **Posterior Internal Vertebral Venous Plexus* (Fig. 1064, p. 667).—" Within the spinal canal and on the back of the theca vertebralis there is a close plexus of veins, the *postero-internal plexus*, whose main trunks are longitudinal on the inside of the articular masses" (Macalister, *op. cit.*, p. 260). "The *posterior longitudinal spinal veins* . . . two in number . . . are often much broken up in parts of their course, and they communicate with one another by numerous cross-branches on the anterior surface of the arches of the vertebræ" (Quain, *op. cit.*, vol. ii., part ii., p. 533). Here we have two different modes of regarding the same anatomical data. See also note [259] above.

[264] *Lateral and Sigmoid Sinuses* (Ibid.).—The common English usage is to extend the meaning of the term *lateral sinus* so as to include that sinus which (following Macalister as well as Toldt) is here distinguished as the *sigmoid sinus*. Thus, according to Quain and the majority of English anatomists, the *lateral sinus* extends from the internal occipital protuberance to the jugular foramen. In this work, however, it is regarded as extending from the internal occipital protuberance to the point where the channel for the sinus passes from the cerebral surface of the parietal to the cerebral surface of the temporal bone. At this point the lateral sinuses "in their archaic fœtal condition communicated through the post-glenoid foramen with the primitive external jugular vein, but this connexion early diminishes, and is ultimately represented only in rudiment by the mastoid vein; an original small channel of communication from the lateral sinus to the posterior lacerate foramen becomes commensurately dilated, and appears in the adult as its continuation, the *sigmoid sinus*" (Macalister, *op. cit.*, p. 533).

[235] **Venous Rete of the Intervertebral Foramen* (Ibid.).—Writing of the *posterior longitudinal spinal veins* and the **posterior internal vertebral venous plexus* (see note [263] above), Quain states (*op. cit.*, vol. ii., part ii., p. 533): "From the plexus . . . offsets pass outwards to the intervertebral foramina, where they join the similar branches given off by the anterior longitudinal veins, and form a plexus around the issuing nerve;" but this author does not make use of the name given above. Macalister merely says that through each intervertebral foramen there emerges an outflowing *ramus spinalis* [*i.e.*, the **intervertebral vein*] to join the *plexus dorsalis* [*i.e.*, the **posterior external vertebral venous plexus*—see note [260] above].

[266] *Torcular Herophili, or Confluence of the Sinuses* (Ibid.).—Properly this name should be applied only to a somewhat rare arrangement of the sinuses, when a true *confluens sinuum* is exhibited at the common meeting-point of the superior longitudinal sinus, the straight sinus, the occipital sinus, and the right and left lateral sinuses. The usual arrangement is for the superior longitudinal sinus to be continued into the right lateral sinus, a dilatation marking the angle of union, this dilatation receiving the occipital sinus, and being conventionally called the *torcular Herophili*; the straight sinus turns to the left into the left lateral sinus, and the right and left lateral sinuses are commonly connected at their origin by a larger or smaller communicating vein. Sometimes this arrangement is reversed, the superior longitudinal sinus being continued into the left, the straight sinus into the right lateral sinus. (See Fig. 1234, p. 804, in Part VI.) The lateral sinus that receives the superior longitudinal sinus is larger than that which receives the straight sinus. Something approaching a true *confluence of the sinuses* is seen in Fig. 1064, in which the superior longitudinal sinus divides, a larger right division being continuous with the right lateral sinus, and a smaller left division being continuous with the left lateral sinus. The termination of the straight sinus in this specimen is not apparent in the figure, but the occipital sinus passes to the commencement of the right lateral sinus.

[267] **Anterior Internal Vertebral Venous Plexus* (Fig. 1065, p. 668).—The *postero-internal plexus*, says Macalister (*op. cit.*, p. 260), is connected by transverse branches "with the still larger *antero-internal plexus*, which lies on the backs of the bodies of the vertebræ. The main stems of this latter are two long veins which pass from end to end of the vertebral canal on the roots of the pedicles of the vertebræ. Across the back of every body these are joined by a cross-branch. Each of these anterior transverse branches receives the *basivertebral vein* from the cancelli of the vertebral body." Quain gives no name to this plexus, but states (*op. cit.*, vol. ii., part ii., p. 533) that "the *anterior longitudinal spinal veins* are two large plexiform vessels which extend the whole length of the spinal canal, lying behind the bodies of the vertebræ, one along each edge of the posterior common ligament." Young (U.S.) calls this plexus the *anterior intraspinal plexus*. (See also note [200] above.)

[268] *Basivertebral Veins* (Ibid.).—Quain calls these veins the *internal veins of the bodies of the vertebræ*, which is cumbrous. The name *basivertebral veins* is current, and sufficiently distinctive. Young (U.S.) calls them *venæ basis vertebrarum*, of which the name used in the text is a convenient modification. For their connexion with the **anterior internal vertebral plexus*, see note [267] above.

[269] **Venous Retia of the Vertebræ* (Ibid.).—"The *plexus venosi vertebrales interni* are mainly constituted by individual circularly-disposed extrathecal networks, the *retia venosa vertebrarum*, which, in each vertebra, are attached in front to the posterior surface of the vertebral body, and are in apposition behind with the neural arch. There are, therefore, as many vertebral venous retia as there are vertebræ in the spinal column. Their series is completed above by a plexiform vascular ring surrounding the foramen magnum" (see notes [260] and [231] above).—Von Langer and Toldt, *op. cit.*, p. 540.

[270] **Venous Plexus of the Nipple* (*Circulus Venosus of Haller*) (Fig. 1068, p. 671).—Von Langer and Toldt, after stating that the veins of the breast correspond in distribution and nomenclature with the arteries of that organ, write (*op. cit.*, p. 411): "Noteworthy is the *plexus venosus mamillæ* in the region of the areola, which is nothing more than a ring-shaped anastomotic chain of small subcutaneous veins surrounding the nipple (mamilla)." The term **venous plexus of the nipple* is not used by Quain or Macalister, but the former authority remarks (*op. cit.*, vol. iii., part iv., p. 290) that "Haller described a sort of anastomotic venous circle surrounding the base of the nipple as the *circulus venosus*"; and the latter, describing the blood-supply of the breast, writes (*op. cit.*, p. 264): "Some of the veins are deep, and accompany the arteries; others form a superficial circle of anastomosis in the areola, and end in the superior thoracic vein."

[271] **Costo-axillary and *Thoracico-epigastric Veins* (Ibid.).—"Of considerable importance are the anastomotic connexions between the axillary vein and the intercostal veins, on the one hand, and between the axillary vein and the subcutaneous venous network of the anterior abdominal wall, on the other. The former is affected by a number of venous radicles, known as the **venæ*

costo-axillares, which arise in the region of distribution of the seven uppermost intercostal veins, and open by a common trunk into the axillary vein. The second series of communications takes place by means of the **venæ thoraco-epigastricæ;* these arise in the region of distribution of the superficial epigastric vein or are directly continuous with the branches of this vein and run on each side of the trunk directly upwards to the axilla, where they open into the axillary vein, sometimes by an independent trunk, sometimes by joining the long thoracic vein. Since the superficial epigastric vein is a tributary of the femoral vein, this elongated anastomosis affords a direct channel of communication between the axillary vein and the femoral vein" (Von Langer and Toldt, *op. cit.*, *p.* 547).

[272] *External Pudic Arteries and Veins* (Ibid.).—These are two in number, *superior* and *inferior*. Both the veins are seen in Fig. 1068; but of the arteries, the *superior* only is visible, the *inferior* being beneath the fascia lata. For the names given to these vessels by Macalister, see note [5] to p. 599.

[273] *Venous Circle of the Umbilicus and Para-umbilical Veins* (Ibid.).—The **venous circle of the umbilicus*, which is not described by Quain or by Macalister, is an anastomotic chain of small subcutaneous veins surrounding the navel, similar to the *circulus venosus* of Haller surrounding the nipple (see note [270] above). The *para-umbilical veins*, in the peritoneum adjacent to the umbilicus and to the round ligament of the liver, form one group of the *accessory portal veins* described by Sappey; it is the communications they form with the **venous circle of the umbilicus* that are indicated in Fig. 1068. In obstruction of the portal circulation, this group of communicating veins forms one of the principal channels of collateral circulation, and it is their enlargement that constitutes the pathological condition known clinically as *caput medusæ*.

[274] *Subcutaneous Dorsal Veins of the Penis* (Ibid.).—As seen in Fig. 1068, these vessels are tributaries of the *external pudic veins* (see note [272] above). They must be carefully distinguished from the *dorsal vein of the penis* proper (see Fig. 1069, p. 672, and Fig. 1070, p. 673), which enters the pelvis and terminates in the *prostatic venous plexus*. See also note [275] below.

[275] *Vesical, Prostatic, and *Pudendal Venous Plexuses* (Fig. 1069, p. 672).—The *vesical venous plexus* consists of veins which ramify over the whole surface of the bladder external to its muscular coat; they are larger and more numerous round the base of the organ, receiving here veins from the ureters, the vasa deferentia, and the vesiculæ seminales, and communicating freely with the prostatic and hæmorrhoidal plexuses. The *prostatic venous plexus*, which is formed largely by the breaking up of the *dorsal vein of the penis*, ramifies between the two layers of the pelviprostatic capsule (see Appendix to Part IV., note [74]). Its connexion with the vesical plexus is so intimate that Macalister describes the two under a joint name as the *prostaticovesical plexus* (*op. cit.*, p. 428). In the female, the place of the prostatic plexus is taken by a plexus surrounding the upper part of the urethra and receiving the *dorsal vein of the clitoris;* the *vaginal plexus* also communicates freely with the vesical plexus in front and the hæmorrhoidal plexus behind. Thus, the **pudendal venous plexus* of Toldt (the term is little used in England) is made up in the male of veins regarded by English anatomists as belonging to the prostatic and vesical plexus; and in the female, of veins belonging to the peri-urethral, vesical, vaginal, and uterine plexuses. See Appendix to Part IV., note [105].

[276] (Fig. 1070, p. 673.) The *obturator fascia* (*parietal layer of the pelvic fascia*) has here split to form the channel for the internal pudic vessels, known as Alcock's canal. See Appendix, note [145].

[277] *Spermatic Vein* (Ibid.).—This is called by the author *vena spermatica interna* to distinguish it from the *vena spermatica externa* —the *cremasteric vein* of English anatomists. As a synonym for *vena spermatica interna*, the author employs the name *vena testicularis* in the male, and *vena ovarica* in the female.

[278] (Ibid.) An account of the anomalous origin of the *obturator artery* from the *deep* or *inferior epigastric artery* is given in note [1] to p. 388, in Part III. of this work.

[279] **Subcutaneous Venous Plexus of the Anus* (Fig. 1072, p. 675). —This name is not used by Quain or Macalister, but the latter authority speaks of the veins under consideration as "the system of *anal* (*proctodeal*) *veins*." The plexus consists of the terminal ramification of the branches of the *inferior* or *external hæmorrhoidal veins* (also called the *anal veins*, see note [150] above), and communicates freely within the anal canal with the *hæmorrhoidal* or *rectal venous plexus* (see Fig. 1073, p. 676), of which, indeed, the *anal venous plexus* is considered by English anatomists to form the lowest part.

[280] (Fig. 1073, p. 676.) English anatomists commonly include in the *hæmorrhoidal* or *rectal venous plexus* that which the author separately describes as the *subcutaneous venous plexus of the anus*. See Fig. 1072, p. 675, and note [279] above.

[281] *Uterovaginal Venous Plexus* (Ibid.).—English anatomists usually speak of separate *uterine* and *vaginal* venous plexuses. These plexuses, of course, communicate somewhat freely; but on the whole the venous blood from the body of the uterus passes by means of the *uterine plexus* to the *ovarian* or *pampiniform venous plexus* and the *inferior vena cava*, that from the neck of the uterus and from the vagina by means of the *vaginal plexus* to the *internal iliac vein*.

[282] **Nasofrontal Vein* (Fig. 1077, p. 682).—This name, which is not employed by Quain or by Macalister, is given by the author to the anterior extremity of the *superior ophthalmic vein*, which communicates with the *angular vein*.

[283] *Anterior, Posterior, and Common Facial Veins* (Ibid.).— It will be noticed that the author's name for the *facial vein* of English anatomists is *vena facialis anterior*, and the name *anterior facial vein* is occasionally used in England also to distinguish this vein from that which is sometimes called the *posterior facial vein* (*vena facialis posterior* of the author), but which is better known as the *temporomaxillary vein* (see Fig. 1077, p. 682). This latter is a short trunk, not infrequently plexiform, formed opposite the neck of the lower jaw by the union of the *temporal* and the *internal maxillary veins*. Near the angle of the jaw the temporomaxillary vein divides into two parts. The *anterior division* joins the *facial vein* to form a short trunk, the *vena facialis communis* of the author, sometimes known in England also as the *common facial vein* (see Fig. 1077); this opens into the internal jugular vein about the level of the hyoid bone. The *posterior division* of the *temporomaxillary vein* (called by Macalister the *communicating branch* from the temporomaxillary to the external jugular vein) unites with the *posterior auricular vein* to form the *external jugular vein*. (The arrangement shown in Fig. 1077 does not correspond fully to the above description, which is, however, that generally accepted as normal.)

[284] **Deltoid Veins* (Ibid.).—No English equivalent of the term *venæ deltoideæ*, used in Fig. 1077, is to be found in the works of Quain or Macalister. Examination of the figure shows that one of the veins thus denoted is the companion vein of one of the thoracic or pectoral branches of the acromiothoracic artery, while the other is a tributary of the cephalic vein.

[285] (Ibid.) Regarding the author's use of the term *superficial cervical artery*, see Appendix, notes [134], [135], [172], and [208]. The same

considerations apply to his use of the term *superficial cervical vein*.

[286] *Ranine Vein* (Fig. 1078, p. 683).—"The lingual artery is accompanied by two small *venæ comites*, but the largest vein of the tongue is the *ranine*, which lies external to the artery of the same name, and, after being joined by *sublingual branches*, passes backwards over the hyoglossus muscle with the hypoglossal nerve. These veins end in the internal jugular" (Ellis, "Demonstrations of Anatomy," 10th ed., p. 97). The *ranine vein*, called by the author, from its course adjacent to the hypoglossal nerve, *vena comitans nervi hypoglossi*, thus returns the greater part of the blood carried to the tongue by the *lingual artery* and its continuation the *ranine artery* (called by the author *arteria profunda linguæ*); but the vein and the nerve lie superficial to, while the artery lies beneath, the hyoglossus muscle.

[287] *Veins of the Temporomandibular Articulation* (Ibid.)—Among the tributaries of the *temporal vein*, Quain mentions "branches from a plexus which surrounds the articulation of the lower jaw, and into which one or two small veins issuing from the tympanum by the fissure of Glaser pour their contents," but he does not give these vessels any distinctive name.

[288] **Submaxillary Fossa* (Fig. 1079, p. 684).—The name of *fossa submaxillaris* is given by the author to the space between the superficial and deep layers of the deep cervical fascia, in which the submaxillary gland lies, bounded above by the lower margin of the mandible, below by the anterior belly of the digastric muscle, and behind by the stylomaxillary ligament. In Quain's terminology this region is the *submaxillary triangle*; in Macalister's, it is the *anterior half* of the *digastric space*.

[289] *Supraclavicular Fossæ* (Ibid.).—In the terminology of English anatomists there is one *supraclavicular fossa* only, viz., the lower part of the posterior triangle of the neck. This, however, is called by the author **fossa supraclavicularis major*, the **greater supraclavicular fossa*; while he gives the name of **fossa supraclavicularis minor*, the **lesser supraclavicular fossa*, to the depression above the sternal extremity of the clavicle which corresponds to the interspace between the two heads of the sternocleidomastoid muscle.

[290] *Basilar Venous Plexus or Basilar Sinus* (Fig. 1080, p. 685).—This is sometimes also called the *transverse sinus*, but the name is better avoided, since the occipital portion of the *lateral sinus* is known in the Continental nomenclature as *sinus transversus* (see note [264] above). According to Von Langer and Toldt, the *basilar venous plexus* is to be regarded as an upward extension of the **anterior internal vertebral venous plexus* (see note [267] above), with which it communicates through the foramen magnum. On each side it opens into the *inferior petrosal sinus*. The *basilar venous plexus* must be carefully distinguished from the *basilar* or *basal vein*, *vena basalis* (*Rosenthali*). See Fig. 1086, p. 691, and note [297] below.

[291] *Rete Canalis Hypoglossi and Emissarium Canalis Hypoglossi* (Ibid.).—According to Quain (*op. cit.*, vol. ii., part ii., p. 526), "A venous ring surrounds the hypoglossal nerve in the anterior condylar foramen, and communicates internally with the occipital sinus and intraspinal veins, externally with the vertebral vein and the plexus on the front of the spine." Von Langer and Toldt describe as normal the existence of a venous network round the hypoglossal nerve, known as the **venous rete of the anterior condylar foramen*, and shown in the right side of Fig. 1080; a variety is the existence of a single, comparatively large, emissary vein in this situation, the **emissary vein of the anterior condylar foramen* (called by Macalister the *anterior condyloid vein*), shown in the left side of Fig. 1080. See also note [261] above.

[292] **Venous Rete of the Foramen Ovale* (Fig. 1082, p. 687).—This name is not used by Quain or Macalister, but the former, in his description of the emissary veins, writes (vol. ii., part ii., p. 526): "One or two considerable veins descend from the cavernous sinus through the foramen ovale, as well as small ones through the fibrous tissue in the foramen lacerum, to the pterygoid and pharyngeal plexuses. There is frequently another vein passing through the foramen of Vesalius."

[293] *Lacunæ Laterales* (Fig. 1083, p. 688).—"Communicating with the superior longitudinal sinus from its anterior end as far back as the beginning of the occipital region are a number of diverticula, from 0·5 to 3 cm. long, which form a series of venous lacunæ (*lacunæ laterales* of Key and Retzius) receiving the independent meningeal veins, and some veins from the diplöe, and are invaginated by Pacchionian granulations. These venous lacunæ are not entirely confined to the region of the superior sinus, but some may occur in the neighbourhood of other sinuses, especially the lateral and straight sinus" (Quain, *op. cit.*, vol. iii., part i., p. 184).

[294] (Fig. 1084, p. 689.) The *superior thyroid vein* sometimes opens directly into the *internal jugular vein*, sometimes, as in the specimen shown in Fig. 1084, into the *common facial vein*. Regarding the last-named vein, see note [283] above.

[295] *Palatine Veins* (Ibid.).—Quain describes two palatine veins, a *superior palatine vein*, which enters the *pterygoid venous plexus*, and an *inferior palatine vein*, which returns the blood from a plexus surrounding the tonsil and from the soft palate, runs downwards beside the pharynx, and opens usually into the *facial vein* near to its proximal extremity. The *inferior palatine vein* of Quain is the vein called *vena palatina* in the author's terminology. The *sphenopalatine vein* (the companion vein of the nasal or sphenopalatine artery), like the superior palatine vein, joins the pterygoid venous plexus.

[296] *Arachnoidal Villi or Pacchionian Bodies* (Fig. 1085, p. 690).—The nature of these bodies having long remained uncertain, they are variously known as *Pacchionian bodies* (*corpora Pacchionii*), *Pacchionian glands* (*glandulæ Pacchionii*), and *Pacchionian granulations* (*granulationes Pacchionii*); Luschka, however, has shown conclusively that they are really enlarged *arachnoidal villi*.

[297] *Basilar or Basal Vein* (*Vena Basalis Rosenthali*) (Fig. 1086, p. 691).—This vein, which winds backwards round the crus cerebri to open into the *vein of Galen* just before it unites with its fellow, forms an anastomotic communication between that vein and the small veins of the base of the brain, and is formed by the confluence of some of these latter, viz., the *anterior cerebral vein*, the *deep Sylvian vein*, and the *inferior striate veins*. It must not be confused with the *basilar venous plexus* or *basilar sinus*, which is shown in Fig. 1080, p. 685, and described in note [290] above.

[298] *Veins of the Spinal Cord* (Ibid.).—Both Quain and Macalister speak generally of the *veins of the spinal cord* without any attempt at further precision in their nomenclature. According to Von Langer and Toldt (*op. cit.*, p. 599), "the *veins of the spinal cord* are arranged in two sets: a *superficial* set, *venæ spinales externæ* (the *external spinal veins*), which, like the arteries, run on the anterior and posterior surfaces, respectively, of the spinal cord: *venæ spinales externæ anteriores et posteriores* (*anterior* and *posterior external spinal veins*); and a *deep* set, *venæ spinales internæ* (the *internal spinal veins*), which are situate within the substance of the spinal cord in the neighbourhood of the central canal. The two sets communicate by horizontal branches; and other horizontal branches, running along the roots of the spinal nerves, connect the *external spinal veins* with the *internal vertebral venous plexuses*. (See note [259] above.)

[299] *Deep Median Vein* (Fig. 1087, p. 694).—The author, in the original German edition of this work, calls the *deep median vein* "the communicating branch between the superficial and the deep veins (*ramus anastomoticus*)." Macalister calls it *vena mediana profunda.*

[300] **Intercapitular Veins* (Fig. 1088, p. 695).—"The palmar veins of all the fingers [*palmar digital veins*] are connected in the interdigital folds by a transverse chain of anastomoses; from each anastomotic loop a short venous trunk, the *vena intercapitularis*, passes backwards to the veins of the dorsum of the hand, and these trunks convey by far the greater portion of the blood from the palmar digital veins" (Von Langer and Toldt, *op. cit.*, p. 548).

[301] *Palmar Digital Veins* (Ibid.).—As in the case of the *palmar digital arteries* (see Appendix, note [213]), the author distinguishes between the *venæ digitales volares propriæ* (*proper palmar digital veins*—see Fig. 1088, p. 695), which are situate on the palmar surfaces of the fingers themselves, and the *venæ digitales volares communes* (*common palmar digital veins*—see Fig. 1093, p. 700), which convey along the palmar surface of the metacarpus from the base of the fingers to the *superficial palmar venous arch* that portion of the blood that is not carried to the dorsum of the hand by the **intercapitular veins* (see note [300] above).

[302] **Dorsal Metacarpal Veins, etc.* (Fig. 1089, p. 696).—In Quain's "Anatomy," and to a lesser extent also in Macalister's "Anatomy," the description and therefore the nomenclature of the venous system, especially as regards the veins of the extremities, is less full and less precise than that of Von Langer and Toldt, whose terminology is used in this Atlas. In the case of the *dorsal metacarpal veins*, and in several other instances, I have therefore given a literal translation of the Latin names used by the author.

[303] **Accessory Cephalic Vein* (Ibid.). — "The name *vena cephalica accessoria* is given to a vein, often of considerable size, which is mainly a continuation of the **fourth dorsal metacarpal vein* [see note [302] above]; this vessel crosses the back of the forearm obliquely, running upwards and outwards to join the *radial vein* in the upper part of the forearm, or the *cephalic vein* just above the bend of the elbow" (Von Langer and Toldt, *op. cit.*, p. 549).

[304] *Dorsal Venous Rete* (*or Plexus*) *of the Hand* (Ibid.).—Macalister describes this plexus as consisting of two parts: "*The internal dorsal plexus* is formed by the union of a vein from the little finger [*vena Salvatella*] with veins from the third and fourth interdigital cleft. The *external dorsal plexus* is formed by the junction of a vein from the thumb [*vena cephalica pollicis*] with veins from the index and middle fingers" (*op. cit.*, p. 278).

[305] *Cephalic and Radial Veins* (Fig. 1090, p. 697).—According to the English nomenclature, the *radial vein* begins in the outer part of the *dorsal venous plexus of the hand*, runs upwards along the outer side of the forearm to join the *median cephalic vein* a little above the elbow, in the outer bicipital groove; the trunk formed by the confluence of these vessels is in England known as the *cephalic vein.* The author gives the name of *vena cephalica* both to the *radial* and to the *cephalic veins* of English anatomists; he sometimes, however, distinguishes the former as *vena cephalica* (*antibrachii*), and the latter as *vena cephalica* (*humeri*).

[306] *Basilic and Ulnar Veins* (Ibid.).—The *anterior* and *posterior ulnar veins* of English anatomists (*anterior* and *posterior superficial ulnar veins*, according to Macalister), the former commencing on the hypothenar eminence and running upwards along the ulnar side of the front of the forearm, and the latter commencing in the inner part of the *dorsal venous plexus of the hand* and running upwards along the ulnar side of the back of the forearm, unite as a rule a little below the elbow, the common trunk passing in front of the internal condyle to the inner bicipital groove, where by its confluence with the *median basilic vein* it forms the *basilic vein.* The author gives the name of *vena basilica* both to the *anterior ulnar* and to the *basilic veins* of English anatomists; he sometimes, however, distinguishes the former as *vena basilica* (*antibrachii*), and the latter as *vena basilica* (*humeri*).

[307] **Capital Vein of the Arm* (Ibid.).—Macalister, at the conclusion of his description of the superficial veins of the upper limb, writes (*op. cit.*, p. 278): "These veins are variable in relative size and arrangement. The basilic is the stem towards which all at first converged, and the radial originally crossed from without at the elbow to join it, receiving in its course the median and a descending branch from the outer bicipital sulcus. The adult form of the cephalic vein is a secondary development due to the dilatation of a communication between the uppermost radicle of this descending vein, and one of the thoracicohumeral veins. Intermediate forms are common." The arrangement of veins shown in the left-hand specimen of Fig. 1090 is obviously an example of the persistence of the primitive arrangement above described, the vein called *vena capitalis brachii* being really the *basilic vein.*

[308] **Median Vein of the Elbow* (Ibid.).—The arrangement of the veins in front of the elbow usually described as normal is for the *median vein*, after receiving the *deep median vein*, to divide into *median basilic* and *median cephalic branches*, as shown in the right-hand specimen in Fig. 1090. Nearly, if not quite, as common is the arrangement shown in the middle specimen of that figure, in which the *median vein* deviates to the ulnar side of the forearm and joins the anterior ulnar vein, while the radial vein divides well below the elbow into an outer branch, the *cephalic vein*, and an inner branch, called by the author *vena mediana cubiti*, which runs inwards and upwards across the flexure of the elbow, receiving in its course the *deep median vein*, and uniting with the trunk formed by the confluence of the *median* and *ulnar veins* to form the *basilic vein.* This is one of the "intermediate forms" alluded to by Macalister (see note [307] above), and the **median vein of the elbow* in this arrangement is the representative of the *median basilic vein* in the arrangement usually described as normal. Sometimes, though the *median vein* divides in "normal" fashion into *median basilic* and *median cephalic branches*, still, an anastomotic branch, parallel with the *median basilic vein* and a little above it, passes across the front of the elbow from the *radial* or the *cephalic* vein to the basilic vein. This vein, when present, is called by the author **vena mediana cubiti accessoria*, the accessory median vein of the elbow (see Fig. 1087, p. 694, and Fig. 1089, p. 696).

[309] (Fig. 1091, p. 698.) Regarding the nomenclature of this terminal portion of the *subscapular artery*, see note [136] above. The same considerations apply to the nomenclature of the companion vein.

[310] (Ibid.) This is the trunk formed by the union of the *anterior* and *posterior ulnar veins* (*anterior* and *posterior superficial ulnar veins*, according to Macalister). See note [306] above.

[311] *Deep Median Vein* (Ibid.).—The author, in the original German edition of this work, calls the *deep median vein* "communicating branch between the [deep] radial veins and the superficial veins (ramus anastomoticus)." Macalister calls it *vena mediana profunda.*

[312] *Perforating Arteries* (Fig. 1099, p. 705).—Usually the *perforating arteries* are *four* in number, the *first, second*, and *third*, or *superior, middle*, and *inferior perforating arteries*, being branches of the *deep femoral* or *profunda artery*, while the terminal portion of

the *profunda*, which perforates the adductor magnus muscle in series with the branches just mentioned, constitutes the *fourth perforating artery*. In the specimen shown in Fig. 1099, however, there are apparently *three* perforating arteries only, the terminal portion of the *deep femoral* or *profunda artery* constituting the *third* of the series. (This is the arrangement described as normal by Von Langer and Toldt.)

[313] **Femoropopliteal Vein* (Fig. 1102, p. 708).—"As the *external* or *short saphenous vein* enters the popliteal space, it is joined by an anastomotic cutaneous vein from the back of the thigh, **vena femoropoplitea*, which runs beside the small sciatic nerve for some distance, and communicates with the lowest *perforating vein*; finally the *external saphenous vein* enters the *popliteal vein*. Not infrequently, however, the **femoropopliteal vein* forms the true upward continuation of the *external saphenous vein*, so that the latter is connected with the popliteal vein only by a relatively small communicating branch, while it terminates in the *deep femoral* or *profunda vein* through the intermediation of the lowest *perforating vein*" (Von Langer and Toldt, *op. cit.*, pp. 552, 553). This variety is described by Quain (*op. cit.*, vol. ii., part ii., p. 538), but the name **femoropopliteal vein* is not used by this author. Another fairly common variety is an enlargement of the communicating branch between the *external* and the *internal saphenous veins*, so that the former vein empties itself chiefly or entirely into the latter.

[314] *Lumbar and Aortic Lymphatic Glands and Plexuses* (Fig. 1113, p. 718).—Quain does not speak of *aortic lymphatic glands* and *plexus*, but divides the *lumbar glands* into three groups, two *lateral* and one *median*, which correspond roughly with the *lumbar* and *aortic* glands respectively of Toldt. Macalister's terminology, however, resembles that of the German author, for according to the former (*op. cit.*, p. 432) the *lumbar lymphatic plexuses* "are united across the aorta by a median *aortic lymphatic plexus*, with about six glands in its course."

[315] *Submaxillary and Suprahyoid or Submental Lymphatic Glands* (Fig. 1115, p. 720).—"The lymphatic glands situate along the lower border of the inferior maxillary bone and on the surface of the submaxillary (salivary) gland, known as *lymphoglandulæ submaxillares*, receive the lymphatic vessels from the face that run beside the facial vein, and also those from the lower gums, the floor of the mouth, and the isthmus of the fauces. One or two glands, situate between the anterior bellies of the digastric muscles, and known as *lymphoglandulæ submentales*, receive the lymphatic vessels of the chin" (Von Langer and Toldt, *op. cit.*, p. 566). The last-named are apparently identical with those called by Sappey the *suprahyoid glands*, one or two small glands "placed in the centre of the neck between the anterior bellies of the two digastric muscles, and connected with the lymphatics descending from the lower lip" (Quain, *op. cit.*, vol. ii., part ii., p. 558).

[316] (Fig. 1116, p. 721.) As the author recognises *two* mediastina only, *anterior* and *posterior* (see Appendix to Part IV., note [24]), the lymphatic glands called by him *lymphoglandulæ mediastinales anteriores* comprise the *superior mediastinal* or *cardiac lymphatic glands* in addition to the *anterior mediastinal lymphatic glands* of English authors (see also note [3] to p. 482, in Part IV.).

[317] *Anterior Auricular and Parotid Lymphatic Glands* (Ibid.).—Writing of the *parotid lymphatic glands*, Quain states (*op. cit.*, vol. ii., part ii., p. 558) that they are "three or four, of small size . . . beneath the parotid fascia, and . . . frequently more or less embedded in the substance of the parotid gland; one, larger than the others, is situated immediately in front of the tragus of the ear." It is thus evident that the glands called by Toldt *lymphoglandulæ auriculares anteriores* are included by Quain among the *parotid lymphatic glands*.

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TO THE

ANGEIOLOGY

INDEX

TO THE ANGEIOLOGY

Certain names in this Index have an asterisk (*) prefixed; these, as more fully explained in the Translator's Preface, being terms that form part of the English nomenclature used in this work, but which are not commonly employed by English anatomists. To other names a dagger (†) is prefixed; these are Latin names used by the author in the original work, but not included in the official nomenclature of the "Anatomische Gesellschaft." Abbreviation: App. = Appendix.

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